



**LOWER MURRAY URBAN & REGIONAL WATER
CORPORATION**

DRINKING WATER QUALITY REPORT

2007 – 2008

1 INTRODUCTION

Lower Murray Water provides urban drinking water, regulated water and wastewater services as well as non drinking water supply, irrigation and drainage services to customers in North-West Victoria, from Kerang through to the South Australian border. Drinking water is supplied to approximately 60,000 customers in this area, with water predominantly being sourced from the Murray River system. Lower Murray Water in co-operation with relevant agencies is committed to the provision of high quality drinking water in continual compliance with the *Safe Drinking Water Act* 2003, and other water quality guidelines and relevant obligations. Additionally, Lower Murray Water is committed to the provision of drinking water of a quality to the customer's satisfaction.

This report contains information as required under the *Safe Drinking Water Act* 2003 (SDWA). It includes details of the fourteen water supplies and nine water treatment plants operated by Lower Murray Water together with the results of the 2007-2008 water quality monitoring program and comparison to the results for, 2004-2005, 2005-2006 and 2006-2007. It also includes information relating to areas supplied with regulated water and also non drinking water associated with irrigation water supplied by Lower Murray Water.

As per the requirements of the *Safe Drinking Water Act* 2003 the Corporation has a Drinking Water Quality Management System in place, including Risk Management and HACCP plans for each drinking water supply. This risk management approach takes in all facets of our water supply systems from catchment to customers tap, utilising multiple barriers in the treatment and distribution systems to ensure that our customers are supplied a safe, high quality drinking water.

The quality of the drinking water supplied by Lower Murray Water for 2007-2008 remained high, with only two aluminium results failing to meet the water quality standards detailed in Schedule 2 of the *Safe Drinking Water Regulations* 2005.

Additionally there were two instances where the pH of water supplied did not meet the "Australian Drinking Water Guidelines" (2004 edition)

Note: the 2004 edition of the Australian Drinking Water Guidelines is freely available at the following webpage:

www.nhmrc.gov.au/publications/synopses/eh19syn.htm

CHARACTERISTICS OF LOWER MURRAY WATER WATER SUPPLY SYSTEMS

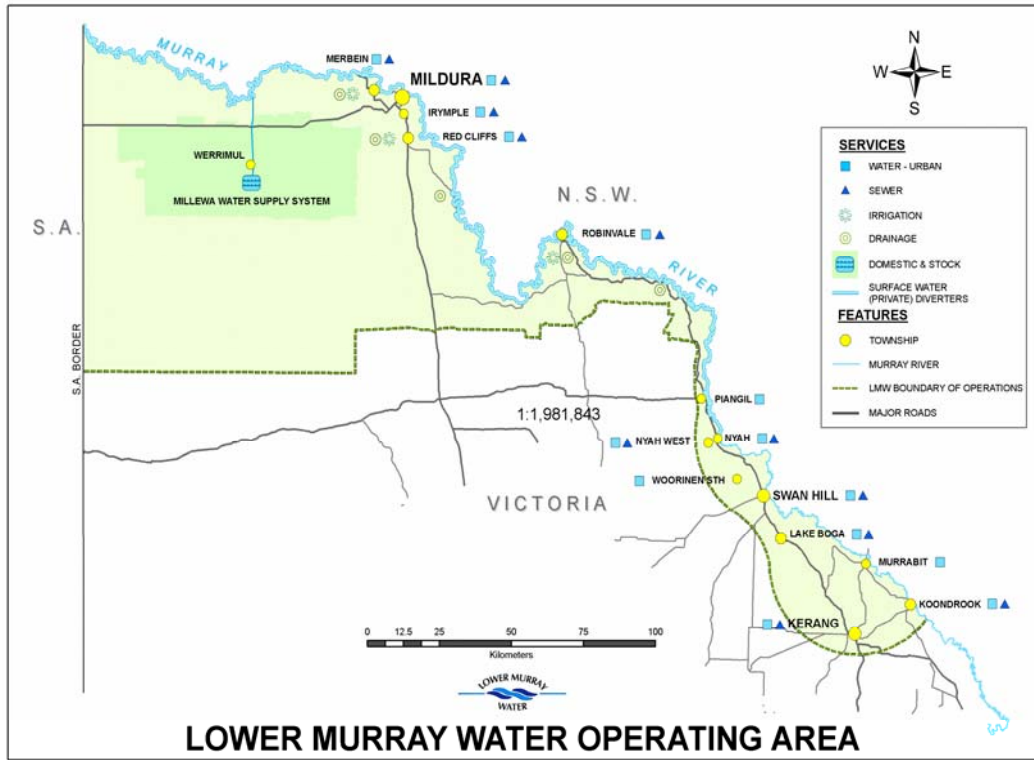


Figure 1 Lower Murray Water operating area

See table 1.1 overleaf for details on Lower Murray Water drinking water supplies and treatment plants.

Table 1.1: Lower Murray Water drinking water supplies and treatment plant details.

Locality	Source Water	Treatment Process	Added Substances	Population served	Comments
Mildura	Murray River	*Coagulation /flocculation *Disinfection *pH correction *Taste & odour removal	Alum/polyelectrolyte Gaseous chlorine Hydrated lime/ sodium hydroxide Powdered Activated Carbon	29,000	Both the Mildura & Mildura West WTP's supply water into the Mildura reticulation.
Irymple				1,100	Supplied from Mildura
Merbein				1800	Supplied from Mildura
Red Cliffs	Murray River	*Coagulation /flocculation *Disinfection *pH correction *Taste & odour removal	Alum Gaseous chlorine Hydrated lime Powdered Activated Carbon	2800	
Robinvale	Murray River	*Coagulation /flocculation *Disinfection *pH correction *Fluoridation Taste & odour removal	Alum Gaseous chlorine Soda ash Sodium fluoride Powdered Activated Carbon	2,250	
Piangil	Murray River	*Coagulation /flocculation *Disinfection *pH correction Taste & odour removal	Alum Gaseous chlorine Sodium hydroxide Powdered Activated Carbon	190	
Swan Hill	Murray River	*Coagulation /flocculation *Disinfection *Taste & odour removal *pH correction	Aluminium chlorohydrate Gaseous chlorine Powdered Activated Carbon Sodium hydroxide	10,500	
Woorinen South				350	Supplied from Swan Hill
Lake Boga				600	Supplied from Swan Hill
Nyah West				550	Supplied from Swan Hill
Nyah				350	Supplied from Swan Hill

4.

Locality	Source Water	Treatment Process	Added Substances	Population served	Comments
Kerang	Murray River. GMW irrigation channel. Loddon River.	*Coagulation /flocculation *Disinfection *pH correction *Taste & odour removal	Alum Gaseous chlorine Hydrated lime Powdered Activated Carbon	4000	
Koondrook	Murray River	*Coagulation /flocculation *Disinfection *pH correction Taste & odour removal	Alum/polyelectrolyte Gaseous chlorine Sodium hydroxide Powdered Activated Carbon	850	
Murrabit	GMW irrigation channel	*Coagulation /flocculation *Disinfection *pH correction Taste & odour removal	Alum/polyelectrolyte Gaseous chlorine Sodium hydroxide Powdered Activated Carbon	95	

Please note that all drinking water supplies are fully treated and all storages, including those within the reticulation are enclosed, roofed structures.

Powdered Activated Carbon dosing facilities were installed at the Robinvale, Piangil, Koondrook and Murrabit plants during the reporting period.

Lower Murray Water also supplies treated water, as a potable supply, to a predominately residential development in Murray Downs NSW, from the Swan Hill treated water supply.

The water is provided in bulk to the Shire of Wakool which is responsible for the storage and distribution. The Shire of Wakool tests the water for residual chlorine and supplements the chlorine as required.

The water is supplied to the Shire by Agreement which is a long term arrangement. There are currently 86 residential and business properties supplied from this agreement.

1.1.1 Source of water

See table 1.1 above.

All treatment plants source the raw water directly or indirectly from the Murray River, apart from Kerang which has multiple water sources.

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At Kerang the water can be sourced directly from the Murray River, at a rate of about 50L/sec which is sufficient to meet demand in the winter period and for the vast majority of time in summer, with Stage 3 water use restrictions in force. Water can also be sourced from the Goulburn Murray Water 14/2 irrigation channel, (water originates from the Murray River), or from the Loddon River. During summer periods with higher demands (without water use restrictions) the water is usually sourced as a blend of Murray and 14/2 channel water in equal proportions. The Loddon River is used only if either of the above sources is unavailable or unsuitable.

At Murrabit the water is sourced from a Goulburn Murray Water irrigation channel which fills into an on site 6ML earthen dam. The channel water originates from the Murray River.

All other treatment plants source water directly from the Murray River.

Notification protocols are in place with Goulburn Murray Water, our water storage manager, for incidences where issues in the rivers or channels supplying our water treatment plants may impact adversely on the water quality being sourced at the plants.

2 WATER TREATMENT AND QUALITY MANAGEMENT SYSTEMS

2.1 Water Treatment.

LOWER MURRAY WATER'S WATER TREATMENT PROCESSES: SUMMARY INFORMATION

Sedimentation, coagulation and flocculation

Some particles will spontaneously settle out from standing water (a process called sedimentation). When particles are slow to settle or are non-settling, chemicals (coagulants) such as alum are added to the water. These react with suspended particles in the water to form larger particles, called floc. During flocculation the floc particles develop to a larger size. The larger size and weight of the flocs then assists in the sedimentation process. Flocculant aids, polyelectrolytes, are also commonly used to enhance the flocculation phase which then assists in the sedimentation process.

Filtration

Filtration occurs as the water passes through filters that help remove particles that have not settled in the sedimentation process. Sand filters are commonly used in the water treatment process. This process of sand filtration removes fine suspended solid matter as well as some other particles, such as larger micro-organisms. Filters can also be made of layers of gravel, sand and filter coal.

pH correction

Due to the addition of coagulants and chlorine, the pH of the water decreases, becoming more acidic. To inhibit corrosion and make the water suitable to use, the pH is adjusted to a neutral pH, about pH 7.0, by adding lime or other alkaline chemicals such as soda ash or sodium hydroxide.

Disinfection

Water is disinfected to kill any pathogens (disease causing organisms) that may be present in the treated water and to prevent them from re-growing in the distribution systems. Without disinfection, the risk from waterborne disease is greatly increased. Chlorination using gaseous chlorine is used at all Lower Murray Water plants and is the most common form of disinfection used in the water treatment industry.

Fluoridation

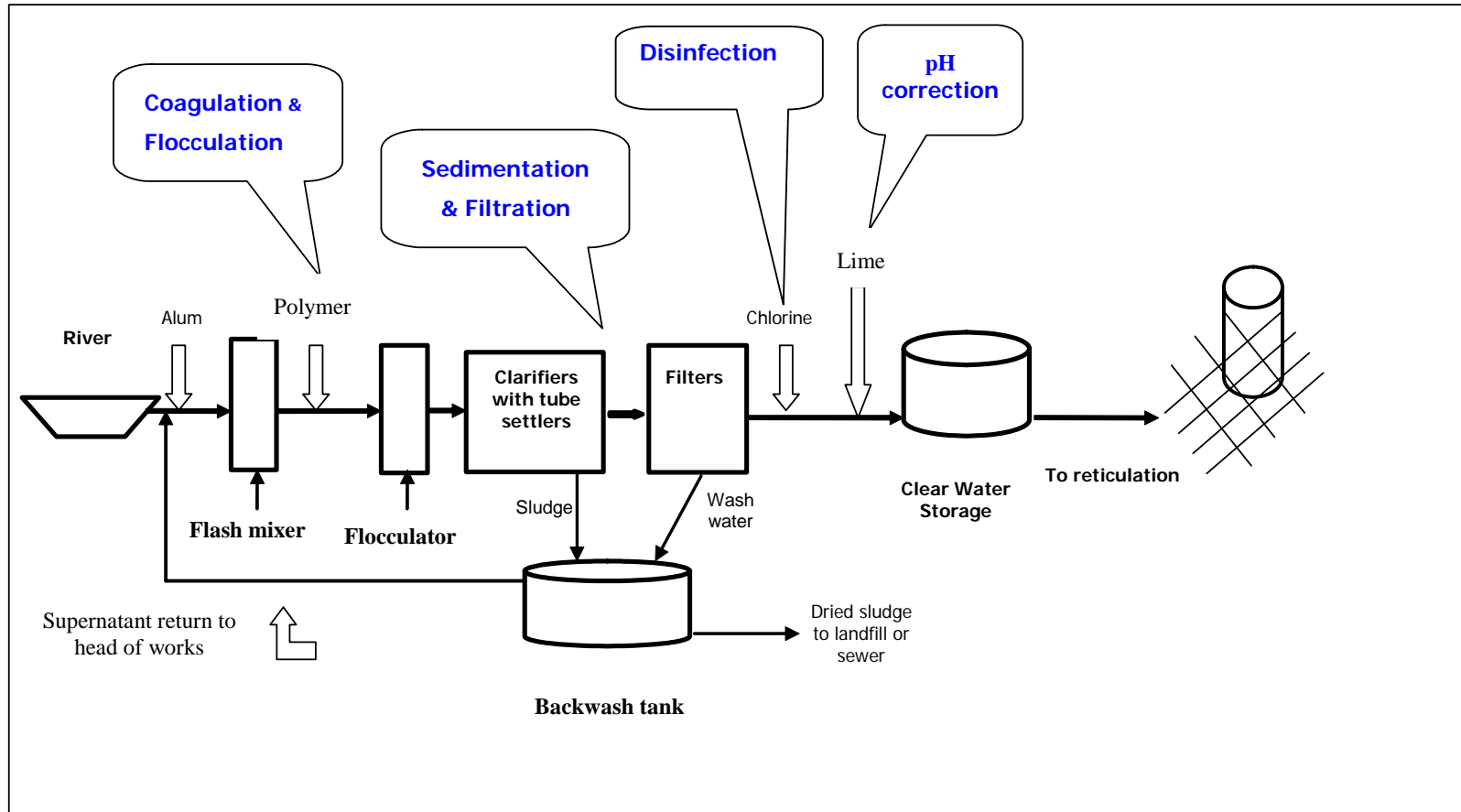
Since May 2006 the drinking water supplied to Robinvale has been fluoridated in line with the requirements of the *Health (Fluoridation) Act 1973*. The fluoride is dosed using the 'Fluorodose' process in which the fluoride, as sodium fluoride, is added to the water under very strictly controlled and monitored conditions. This was the only fluoridated Lower Murray Water supply for the reporting period.

Note: all Lower Murray Water water treatment plants are based on the coagulation, flocculation and sedimentation process except for the Red Cliffs plant which is a Dissolved Air Flotation Filtration (DAFF) plant in which the floc in the flocculated water is made to rise to the top of the flotation tank by the use of pressurised, air saturated water, which releases millions of extremely small air bubbles into the water being treated. The accumulated sludge is then periodically removed from the top of the flotation tank, as compared to the sedimentation process where the sludge accumulates at the bottom of the tank.

In order to supply water of an acceptable quality with respect to the health and aesthetic aspects, Lower Murray Water has water treatment plants providing full treatment for all our urban water supplies.

See over page, Diagram 1, a schematic diagram of a 'typical' water treatment plant process.

Diagram 1: Typical water treatment plant process



2.2 Issues

For this reporting period, there were no water quality issues requiring discussion.

3 QUALITY OF DRINKING WATER FOR 2007-08

Lower Murray Water has a water quality monitoring program in place to comply with the *Safe Drinking Water Act 2003*. One of the conditions of this Act, is the requirement that water suppliers, such as Lower Murray Water, must ensure that all drinking water supplied by it to another person complies with the quality standards specified for drinking water in Schedule 2 of the *Safe Drinking Water Regulations 2005*, see Schedule 2 details below.

Safe Drinking Water Regulations 2005

SCHEDULE 2

Drinking Water Quality Standards

Table

<i>Column 1</i>	<i>Column 2</i>	<i>Column 3</i>
Parameter	Relevant sampling frequency for each water sample locality	Quality standard for each water sampling locality
Microbiological organisms		
<i>Escherichia coli</i>	one sample per week	At least 98% of all samples of drinking water collected in any 12 month period contain no <i>Escherichia coli</i> per 100 millilitres of drinking water
Chlorine based chemicals		
Chloroacetic acid	one sample per month	0.15 milligrams per litre of drinking water
Dichloroacetic acid	one sample per month	0.1 milligrams per litre of drinking water
Trichloroacetic acid	one sample per month	0.1 milligrams per litre of drinking water
Trihalomethanes	one sample per month	0.25 milligrams per litre of drinking water

Chemicals derived from disinfection or treatment with ozone

Bromate	one sample per month	0.02 milligrams per litre of drinking water
Formaldehyde	one sample per month	0.5 milligrams per litre of drinking water

Aluminium based chemicals

Aluminium	one sample per month	0.2 milligrams per litre of drinking water (acid –soluble)
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Other parameters

Turbidity	one sample per week	95% upper confidence limit of the mean of samples of drinking water collected in any 12 month period must be less than or equal to 5.0 Nephelometric Turbidity Units.
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For the reporting period 2007- 2008 the Murrabit and Kerang drinking water supplies did not comply with the standard for aluminium and this was reported to the Department under section 18 of the Act. There were two instances of elevated aluminium levels, one at Murrabit in July and one at Kerang in December. Refer to Table 3.8 and section 3.4.2 for further detail.

Lower Murray Water does not use ozone-based chemicals in our water treatment/supply systems, however sampling and analysis for bromate and formaldehyde was undertaken on one occasion during the reporting period at each treatment plant during the current reporting period, except for Robinvale which was inadvertently missed. The results obtained this year again vindicate the Corporation's consideration that ozone-based disinfection by-products such as bromate and formaldehyde are not a risk in drinking water supplied by Lower Murray Water.

Additional to the requirements of the, Safe Drinking Water Regulations 2005, Lower Murray Water has a comprehensive monitoring regime in place for a wide range of water quality parameters, comparing the results against the Australian Drinking Water Guidelines 2004 health related and aesthetic guideline values. All drinking water supplied by Lower Murray Water during the reporting period complied with the guidelines, apart from two slightly low pH results, one in August at Piangil; pH 6.4, the other in January at Murrabit; 6.2. The low pH results were not of health-related significance

LOWER MURRAY WATER - WATER QUALITY 2007/2008

NOTE: All samples taken in reticulation unless otherwise noted. Tables 3.1 - 3.9 contain results reporting against the standards listed in Schedule 2 of the Safe Drinking Water Regulations 2005.

3.1 Escherichia coli (E. coli)

3.1.1 Results

Standard: At least 98% of all samples of drinking water collected in any 12 months period to contain no *E. coli* per 100 mL

Table 3.1 *E. coli*

2007/2008							2006/2007				2005/2006				2004/2005			
Locality	No. of samples	Frequency of sampling	No. Non complying samples	Max result (orgs/100mL)	% samples with no <i>E. coli</i>	Complying (Yes/No)	No. of samples	No. Non complying samples	Max result (orgs/100mL)	% samples with no <i>E. coli</i>	Complying (Yes/No)	Max result (orgs/100mL)	% samples with no <i>E. coli</i>	Complying (Yes/No)	No. of samples	Max result (orgs/100mL)	% samples with no <i>E. coli</i>	Complying (Yes/No)
Irymple	52	Weekly	0	0	100	Yes	52	0	0	100	Yes	0	100	Yes	52	0	100	Yes
Kerang	52	Weekly	0	0	100	Yes	52	0	0	100	Yes	0	100	Yes	52	0	100	Yes
Koondrook	52	Weekly	0	0	100	Yes	52	0	0	100	Yes	0	100	Yes	52	0	100	Yes
Lake Boga	52	Weekly	0	0	100	Yes	52	0	0	100	Yes	0	100	Yes	52	0	100	Yes
Merbein	52	Weekly	0	0	100	Yes	52	0	0	100	Yes	0	100	Yes	52	0	100	Yes
Mildura	117	Weekly	0	0	100	Yes	117	0	0	100	Yes	0	100	Yes	119	0	100	Yes
Murrabit	52	Weekly	0	0	100	Yes	52	0	0	100	Yes	0	100	Yes	52	0	100	Yes
Nyah	52	Weekly	0	0	100	Yes	52	0	0	100	Yes	0	100	Yes	52	0	100	Yes
Nyah West	52	Weekly	0	0	100	Yes	52	0	0	100	Yes	0	100	Yes	52	0	100	Yes
Piangil	52	Weekly	0	0	100	Yes	52	0	0	100	Yes	0	100	Yes	52	0	100	Yes
Red Cliffs	52	Weekly	0	0	100	Yes	52	0	0	100	Yes	0	100	Yes	52	0	100	Yes
Robinvale	52	Weekly	0	0	100	Yes	52	0	0	100	Yes	0	100	Yes	52	3	98.1	Yes
Swan Hill	64	Weekly	0	0	100	Yes	65	0	0	100	Yes	0	100	Yes	66	0	100	Yes
Woorinen South	52	Weekly	0	0	100	Yes	52	0	0	100	Yes	0	100	Yes	52	0	100	Yes

* Additional numbers of samples were taken for Mildura & Swan Hill due to the larger population serviced by these supplies, necessitating the collection of multiple samples each week for Mildura, and on some weeks for Swan Hill.

3.2 Chlorine based disinfection byproduct chemicals

3.2.1 Results

Table 3.2 Chloroacetic acid Standard: 0.15mg/L

2007/2008						2006/2007				2005/2006				2004/2005			
Water Sampling Locality	Frequency of sampling	No. of samples	Max (mg/L)	Min (mg/L)	Complying (Yes/No)	No. of samples	Max (mg/L)	Min (mg/L)	Complying (Yes/No)	No. of samples	Max (mg/L)	Min (mg/L)	Complying (Yes/No)	No. of samples	Max (mg/L)	Min (mg/L)	Complying (Yes/No)
Irymple	Monthly	12	<0.005	<0.005	Yes	12	<0.005	<0.005	Yes	12	<0.005	<0.005	Yes	12	<0.005	<0.005	Yes
Kerang	Monthly	12	<0.005	<0.005	Yes	12	<0.005	<0.005	Yes	12	<0.005	<0.005	Yes	12	<0.005	<0.005	Yes
Koondrook	Monthly	12	<0.005	<0.005	Yes	12	<0.005	<0.005	Yes	12	<0.005	<0.005	Yes	12	<0.005	<0.005	Yes
Lake Boga	Monthly	12	<0.005	<0.005	Yes	12	<0.005	<0.005	Yes	12	<0.005	<0.005	Yes	12	<0.005	<0.005	Yes
Merbein	Monthly	12	<0.005	<0.005	Yes	12	<0.005	<0.005	Yes	12	<0.005	<0.005	Yes	12	<0.005	<0.005	Yes
Mildura	Monthly	12	<0.005	<0.005	Yes	12	<0.005	<0.005	Yes	12	<0.005	<0.005	Yes	12	<0.005	<0.005	Yes
Murrabit	Monthly	12	<0.005	<0.005	Yes	12	<0.005	<0.005	Yes	12	<0.005	<0.005	Yes	12	<0.005	<0.005	Yes
Nyah	Monthly	12	<0.005	<0.005	Yes	12	<0.005	<0.005	Yes	12	<0.005	<0.005	Yes	12	<0.005	<0.005	Yes
Nyah West	Monthly	12	<0.005	<0.005	Yes	12	<0.005	<0.005	Yes	12	<0.005	<0.005	Yes	12	<0.005	<0.005	Yes
Piangil	Monthly	12	<0.005	<0.005	Yes	12	<0.005	<0.005	Yes	12	<0.005	<0.005	Yes	12	<0.005	<0.005	Yes
Red Cliffs	Monthly	12	<0.005	<0.005	Yes	12	<0.005	<0.005	Yes	12	<0.005	<0.005	Yes	12	<0.005	<0.005	Yes
Robinvale	Monthly	12	<0.005	<0.005	Yes	12	<0.005	<0.005	Yes	12	<0.005	<0.005	Yes	12	<0.005	<0.005	Yes
Swan Hill	Monthly	12	<0.005	<0.005	Yes	12	<0.005	<0.005	Yes	12	<0.005	<0.005	Yes	12	<0.005	<0.005	Yes
Woorinen South	Monthly	12	<0.005	<0.005	Yes	12	<0.005	<0.005	Yes	12	<0.005	<0.005	Yes	12	<0.005	<0.005	Yes

Table 3.3 Dichloroacetic acid Standard: 0.1mg/L

2007/2008						2006/2007				2005/2006				2004/2005			
Water Sampling Locality	Frequency of sampling	No. of samples	Max (mg/L)	Min (mg/L)	Complying (Yes/No)	No. of samples	Max (mg/L)	Min (mg/L)	Complying (Yes/No)	No. of samples	Max (mg/L)	Min (mg/L)	Complying (Yes/No)	No. of samples	Max (mg/L)	Min (mg/L)	Complying (Yes/No)
Irymple	Monthly	12	0.006	<0.005	Yes	12	0.008	<0.001	Yes	12	0.012	0.003	Yes	12	0.017	0.002	Yes
Kerang	Monthly	12	0.008	<0.005	Yes	12	0.007	0.002	Yes	12	0.022	0.005	Yes	12	0.030	0.004	Yes
Koondrook	Monthly	12	0.013	<0.005	Yes	12	0.007	0.003	Yes	12	0.035	0.004	Yes	12	0.035	0.004	Yes
Lake Boga	Monthly	12	0.012	<0.005	Yes	12	0.013	<0.005	Yes	12	0.018	0.003	Yes	12	0.019	0.005	Yes
Merbein	Monthly	12	0.006	<0.005	Yes	12	0.005	<0.001	Yes	12	0.008	0.002	Yes	12	0.010	0.004	Yes
Mildura	Monthly	12	0.007	<0.005	Yes	12	0.008	<0.001	Yes	12	0.020	0.002	Yes	12	0.012	0.003	Yes
Murrabit	Monthly	12	0.020	0.008	Yes	12	0.016	<0.005	Yes	12	0.024	0.005	Yes	12	0.022	0.010	Yes
Nyah	Monthly	12	0.012	<0.005	Yes	12	0.010	0.004	Yes	12	0.017	0.003	Yes	12	0.010	0.003	Yes
Nyah West	Monthly	12	0.012	<0.005	Yes	12	0.008	0.002	Yes	12	0.017	0.002	Yes	12	0.014	0.003	Yes
Piangil	Monthly	12	0.014	<0.005	Yes	12	0.011	0.004	Yes	12	0.033	0.005	Yes	12	0.029	0.004	Yes
Red Cliffs	Monthly	12	0.013	<0.005	Yes	12	0.013	0.004	Yes	12	0.024	0.004	Yes	12	0.020	0.006	Yes
Robinvale	Monthly	12	0.018	<0.005	Yes	12	0.012	0.003	Yes	12	0.021	0.004	Yes	12	0.018	0.006	Yes
Swan Hill	Monthly	12	0.010	<0.005	Yes	12	0.008	0.002	Yes	12	0.028	0.003	Yes	12	0.018	0.002	Yes
Woorinen South	Monthly	12	0.010	<0.005	Yes	12	0.040	0.002	Yes	12	0.017	0.002	Yes	12	0.017	0.002	Yes

Table 3.4 Trichloroacetic acid Standard: 0.1mg/L

2007/2008						2006/2007				2005/2006				2004/2005			
Water Sampling Locality	Frequency of sampling	No. of samples	Max (mg/L)	Min (mg/L)	Complying (Yes/No)	No. of samples	Max (mg/L)	Min (mg/L)	Complying (Yes/No)	No. of samples	Max (mg/L)	Min (mg/L)	Complying (Yes/No)	No. of samples	Max (mg/L)	Min (mg/L)	Complying (Yes/No)
Irymple	Monthly	12	0.005	<0.005	Yes	12	0.006	<0.001	Yes	12	0.021	0.001	Yes	12	0.015	0.002	Yes
Kerang	Monthly	12	0.009	<0.005	Yes	12	0.006	0.003	Yes	12	0.026	0.003	Yes	12	0.034	0.004	Yes
Koondrook	Monthly	12	0.013	<0.005	Yes	12	0.006	0.002	Yes	12	0.048	0.003	Yes	12	0.036	0.004	Yes
Lake Boga	Monthly	12	0.013	<0.005	Yes	12	0.008	0.002	Yes	12	0.053	0.002	Yes	12	0.037	0.003	Yes
Merbein	Monthly	12	0.007	<0.005	Yes	12	0.008	<0.001	Yes	12	0.021	0.001	Yes	12	0.017	0.002	Yes
Mildura	Monthly	12	<0.005	<0.005	Yes	12	0.006	<0.001	Yes	12	0.019	<0.001	Yes	12	0.018	0.001	Yes
Murrabit	Monthly	12	0.024	0.010	Yes	12	0.019	<0.005	Yes	12	0.026	0.005	Yes	12	0.060	0.010	Yes
Nyah	Monthly	12	0.012	0.006	Yes	12	0.016	<0.005	Yes	12	0.032	0.005	Yes	12	0.020	0.007	Yes
Nyah West	Monthly	12	0.013	0.005	Yes	12	0.011	0.004	Yes	12	0.026	0.002	Yes	12	0.023	0.004	Yes
Piangil	Monthly	12	0.015	0.005	Yes	12	0.009	0.003	Yes	12	0.044	0.004	Yes	12	0.036	0.002	Yes
Red Cliffs	Monthly	12	0.009	<0.005	Yes	12	0.008	0.002	Yes	12	0.026	0.003	Yes	12	0.021	0.003	Yes
Robinvale	Monthly	12	0.014	<0.005	Yes	12	0.008	0.002	Yes	12	0.035	0.002	Yes	12	0.028	0.003	Yes
Swan Hill	Monthly	12	0.007	<0.005	Yes	12	0.009	0.001	Yes	12	0.036	0.002	Yes	12	0.018	0.002	Yes
Woorinen South	Monthly	12	0.014	<0.005	Yes	12	0.011	0.003	Yes	12	0.022	0.001	Yes	12	0.018	0.003	Yes

Table 3.5 Trihalomethanes Standard: 0.25mg/L

2007/2008						2006/2007				2005/2006				2004/2005			
Water Sampling Locality	Frequency of sampling	No. of samples	Max mg/L	Min mg/L	Complying (Yes/No)	No. of samples	Max mg/L	Min mg/L	Complying (Yes/No)	No. of samples	Max mg/L	Min mg/L	Complying (Yes/No)	No. of samples	Max mg/L	Min mg/L	Complying (Yes/No)
Irymple	Monthly	12	0.045	0.022	Yes	12	0.054	0.006	Yes	12	0.067	0.015	Yes	12	0.075	0.023	Yes
Kerang	Monthly	12	0.027	0.009	Yes	12	0.020	<0.005	Yes	12	0.045	0.011	Yes	12	0.170	0.016	Yes
Koondrook	Monthly	12	0.041	0.015	Yes	12	0.025	0.002	Yes	12	0.066	0.008	Yes	12	0.092	0.016	Yes
Lake Boga	Monthly	12	0.044	0.024	Yes	12	0.038	0.014	Yes	12	0.093	0.015	Yes	12	0.082	0.024	Yes
Merbein	Monthly	12	0.070	0.021	Yes	12	0.051	0.008	Yes	12	0.067	0.010	Yes	12	0.079	0.025	Yes
Mildura	Monthly	12	0.059	0.006	Yes	12	0.033	<0.005	Yes	12	0.046	0.008	Yes	12	0.078	0.016	Yes
Murrabit	Monthly	12	0.070	0.024	Yes	12	0.043	0.014	Yes	12	0.090	0.012	Yes	12	0.078	0.028	Yes
Nyah	Monthly	12	0.050	0.030	Yes	12	0.053	0.023	Yes	12	0.099	0.030	Yes	12	0.077	0.035	Yes
Nyah West	Monthly	12	0.053	0.024	Yes	12	0.059	0.018	Yes	12	0.100	0.031	Yes	12	0.071	0.032	Yes
Piangil	Monthly	12	0.057	0.019	Yes	12	0.039	0.012	Yes	12	0.072	0.012	Yes	12	0.064	0.020	Yes
Red Cliffs	Monthly	12	0.059	0.029	Yes	12	0.053	0.018	Yes	12	0.078	0.017	Yes	12	0.086	0.029	Yes
Robinvale	Monthly	12	0.062	0.01	Yes	12	0.041	0.014	Yes	12	0.082	0.019	Yes	12	0.080	0.029	Yes
Swan Hill	Monthly	12	0.024	0.013	Yes	12	0.090	0.006	Yes	12	0.059	0.009	Yes	12	0.035	0.004	Yes
Woorinen South	Monthly	12	0.048	0.026	Yes	12	0.048	0.021	Yes	12	0.098	0.012	Yes	12	0.080	0.007	Yes

3.3 Ozone based disinfection byproduct chemicals

3.3.1 Results

Table 3.6 Bromate Standard: 0.02mg/L

2007/2008						2006/2007				
Water Sampling Locality	Frequency of sampling	No. of samples	Max mg/L	Min mg/L	Complying (Yes/No)	Water Samp Locality	No. of samples	Max mg/L	Min mg/L	Complying (Yes/No)
Kerang	Yearly	1	<0.01	<0.01	Yes	Kerang	1	<0.01	<0.01	Yes
Koondrook	Yearly	1	<0.01	<0.01	Yes	Koondrook	1	<0.01	<0.01	Yes
Mildura	Yearly	1	<0.01	<0.01	Yes	Mildura	1	<0.01	<0.01	Yes
Murrabit	Yearly	1	<0.01	<0.01	Yes	Murrabit	1	<0.01	<0.01	Yes
Piangil	Yearly	1	<0.01	<0.01	Yes	Piangil	1	<0.01	<0.01	Yes
Red Cliffs	Yearly	1	<0.01	<0.01	Yes	Red Cliffs	1	<0.01	<0.01	Yes
Swan Hill	Yearly	1	<0.01	<0.01	Yes	Swan Hill	1	<0.01	<0.01	Yes

Table 3.7 Formaldehyde Standard: 0.5mg/L

2007/2008						2006/2007				
Water Sampling Locality	Frequency of sampling	No. of samples	Max mg/L	Min mg/L	Complying (Yes/No)	Water Samp Locality	No. of samples	Max mg/L	Min mg/L	Complying (Yes/No)
Kerang	Yearly	1	<0.1	<0.1	Yes	Kerang	1	<0.1	<0.1	Yes
Koondrook	Yearly	1	<0.1	<0.1	Yes	Koondrook	1	<0.1	<0.1	Yes
Mildura	Yearly	1	<0.1	<0.1	Yes	Mildura	1	<0.1	<0.1	Yes
Murrabit	Yearly	1	<0.1	<0.1	Yes	Murrabit	1	<0.1	<0.1	Yes
Piangil	Yearly	1	<0.1	<0.1	Yes	Piangil	1	<0.1	<0.1	Yes
Red Cliffs	Yearly	1	<0.1	<0.1	Yes	Red Cliffs	1	<0.1	<0.1	Yes
Swan Hill	Yearly	1	<0.1	<0.1	Yes	Swan Hill	1	<0.1	<0.1	Yes

Note: Lower Murray Water does not use ozone at any of its treatment plants.
The above testing for bromate & formaldehyde was carried out for information purposes.

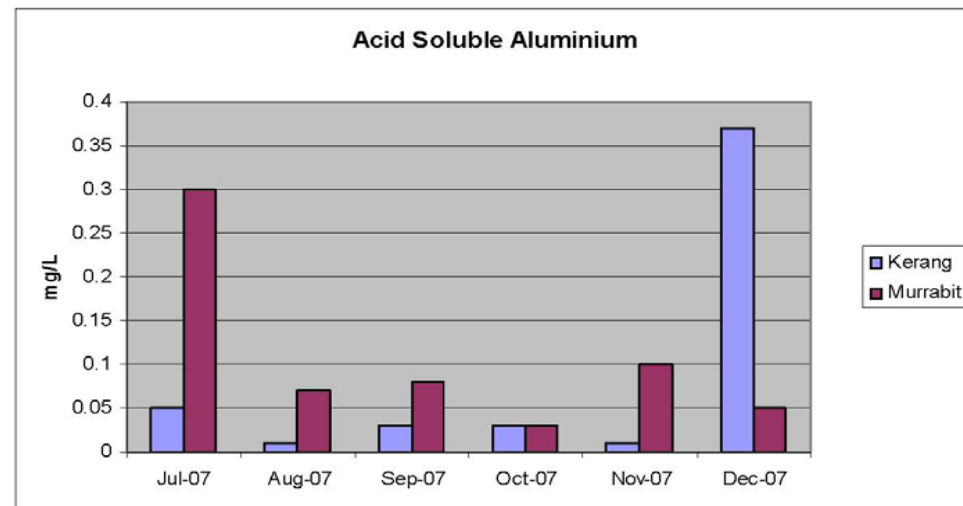
3.4 Aluminium

3.4.1 Results

Table 3.8 Aluminium Standard: 0.2 mg/L (acid soluble)

2007/2008						2006/2007				2005/2006				2004/2005			
Water Sampling Locality	Frequency of sampling	No. of samples	Max mg/L	Min mg/L	Complying (Yes/No)	No. of samples	Max mg/L	Min mg/L	Complying (Yes/No)	No. of samples	Max	Min	Complying (Yes/No)	No. of samples	Max	Min	Complying (Yes/No)
Irymple	Monthly	12	0.06	0.02	Yes	12	0.18	<0.05	Yes	12	0.18	<0.05	Yes	12	0.09	<0.05	Yes
Kerang	Monthly	12	0.39**	0.01	No	12	0.13	<0.05	Yes	12	0.08	<0.05	Yes	12	0.33	<0.05	No
Koondrook	Monthly	12	0.13	0.02	Yes	12	0.24*	<0.05	Yes	12	0.24*	<0.05	Yes	12	0.06	<0.05	Yes
Lake Boga	Monthly	12	0.07	0.01	Yes	12	0.05	<0.05	Yes	12	<0.05	<0.05	Yes	12	<0.05	<0.05	Yes
Merbein	Monthly	12	0.03	0.01	Yes	12	0.11	<0.05	Yes	12	0.11	<0.05	Yes	12	<0.05	<0.05	Yes
Mildura	Monthly	12	0.03	<0.01	Yes	12	<0.05	<0.05	Yes	12	0.14	<0.05	Yes	12	0.05	<0.05	Yes
Murrabit	Monthly	12	0.30***	0.02	No	12	0.17	<0.05	Yes	12	0.16	<0.05	Yes	12	0.06	<0.05	Yes
Nyah	Monthly	12	0.02	<0.01	Yes	12	<0.05	<0.05	Yes	12	<0.05	<0.05	Yes	12	<0.05	<0.05	Yes
Nyah West	Monthly	12	0.02	<0.01	Yes	12	<0.05	<0.05	Yes	12	<0.05	<0.05	Yes	12	<0.05	<0.05	Yes
Piangil	Monthly	12	0.05	<0.01	Yes	12	<0.05	<0.05	Yes	12	<0.05	<0.05	Yes	12	0.21*	<0.05	Yes
Red Cliffs	Monthly	12	0.04	0.02	Yes	12	0.05	<0.05	Yes	12	0.12	<0.05	Yes	12	0.07	<0.05	Yes
Robinvale	Monthly	12	0.03	<0.01	Yes	12	<0.05	<0.05	Yes	12	<0.05	<0.05	Yes	12	<0.05	<0.05	Yes
Swan Hill	Monthly	12	0.02	<0.01	Yes	12	<0.05	<0.05	Yes	12	<0.05	<0.05	Yes	12	<0.05	<0.05	Yes
Woorinen South	Monthly	12	0.03	<0.01	Yes	12	0.06	<0.05	Yes	12	<0.05	<0.05	Yes	12	<0.05	<0.05	Yes

* Koondrook and Piangil results in previous reporting periods are considered compliant based on DHS data rounding conventions.



3.4.2 Actions in relation to non-compliance;

** Kerang sample taken in December 2007; aluminium 0.39 mg/L. Trials were conducted which indicated that the high aluminium residual was due to a higher than normal pH of the settled water prior to filtration. A reduction in the pH prior to filtering resulted in lower aluminium residuals in the treated water.

The Kerang plant is the only LMW plant where pH correction is carried out prior to the filters. Works are under way to enable lime dosing post the filters to alleviate the potential problem.

*** Murrabit sample taken in July 2007; aluminium 0.30 mg/L. No explanation for the elevated result is available, repeat samplings taken the following two weeks, aluminium was <0.01mg/L

3.5 Turbidity

3.5.1 Results

Standard: 95% upper confidence limit of the mean of samples of drinking water collected in any 12 month period must be less than or equal to 5.0 NTU.

Table 3.9 Turbidity

2007/2008							2006/2007					2005/2006					2004/2005				
Water Sampling Locality	Frequency of sampling	No. of samples	Max (NTU)	Min (NTU)	95% upper confidence limit of the mean (NTU)	Complying (Yes/No)	No. of samples	Max (NTU)	Min (NTU)	95% upper confidence limit of the mean (NTU)	Complying (Yes/No)	No. of samples	Max (NTU)	Min (NTU)	95% upper confidence limit of the mean (NTU)	Complying (Yes/No)	No. of samples	Max (NTU)	Min (NTU)	95% upper confidence limit of the mean (NTU)	Complying (Yes/No)
Irymple	Weekly	52	1.0	<0.1	0.3	Yes	52	3.0	0.2	0.5	Yes	52	1.7	0.1	0.4	Yes	52	0.9	0.1	0.4	Yes
Kerang	Weekly	52	1.3	0.1	0.5	Yes	52	2.0	0.2	0.4	Yes	52	0.7	0.1	0.3	Yes	52	1.9	0.1	0.5	Yes
Koondrook	Weekly	52	1.7	0.1	0.6	Yes	52	0.8	0.2	0.4	Yes	52	1.4	0.1	0.4	Yes	52	2.7	0.1	0.5	Yes
Lake Boga	Weekly	52	1.4	0.1	0.3	Yes	52	3.0	0.1	0.4	Yes	52	0.6	0.1	0.3	Yes	52	0.8	0.1	0.4	Yes
Merbein	Weekly	52	1.6	0.1	0.5	Yes	52	2.1	0.1	0.5	Yes	52	1.0	0.1	0.4	Yes	52	2.4	0.1	0.6	Yes
Mildura	Weekly	52	1.1	0.1	0.4	Yes	53	0.8	0.2	0.3	Yes	52	0.5	0.1	0.4	Yes	52	1.6	0.1	0.5	Yes
Murrabit	Weekly	52	2.2	0.1	0.7	Yes	52	1.4	0.1	0.5	Yes	52	1.7	0.1	0.5	Yes	52	1.2	0.2	0.4	Yes
Nyah	Weekly	52	2.0	<0.1	0.4	Yes	52	0.7	0.1	0.3	Yes	52	0.7	0.1	0.3	Yes	52	0.8	0.1	0.4	Yes
Nyah West	Weekly	52	0.8	<0.1	0.3	Yes	52	0.8	0.1	0.3	Yes	52	1.3	0.1	0.3	Yes	52	2.0	0.1	0.4	Yes
Piangil	Weekly	52	0.8	<0.1	0.4	Yes	52	0.6	0.1	0.3	Yes	52	0.9	0.1	0.3	Yes	52	4.4	0.1	0.6	Yes
Red Cliffs	Weekly	52	1.1	<0.1	0.4	Yes	52	1.7	0.1	0.5	Yes	52	0.9	0.1	0.4	Yes	52	0.8	0.1	0.4	Yes
Robinvale	Weekly	52	1.1	<0.1	0.4	Yes	52	1.1	0.2	0.4	Yes	52	1.5	0.1	0.4	Yes	52	1.1	0.1	0.4	Yes
Swan Hill	Weekly	52	0.6	<0.1	0.3	Yes	54	0.7	0.1	0.3	Yes	52	0.5	0.1	0.3	Yes	52	0.8	0.1	0.3	Yes
Woorinen South	Weekly	52	0.7	<0.1	0.3	Yes	52	5.0	0.1	0.6	Yes	52	0.6	0.1	0.3	Yes	52	6.2	0.1	0.7	Yes

3.6 Fluoride

3.6.1 Results

Table 3.10 Fluoride

Health Related Guideline Value: 1.5mg/L

The annual average for fluoride in drinking water is not to exceed a level of 1mg/L.

2007/2008							2006/2007					2005/2006					2004/2005			
Water Sampling Locality	Frequency of sampling	No. of samples	Max mg/L	Min mg/L	Average mg/L	Complying (Yes/No)	No. of samples	Max mg/L	Min mg/L	Average mg/L	Complying (Yes/No)	No. of samples	Max mg/L	Min mg/L	Average mg/L	Complying (Yes/No)	No. of samples	No. complying	% complying	
Irymple	*	*	*	*	*	N/A	*	*	*	*	N/A	*	*	*	*	*	*	*	*	N/A
Kerang	Quarterly	4	<0.05	<0.05	<0.05	Yes	4	<0.3	<0.3	<0.3	Yes	4	<0.3	<0.3	<0.3	Yes	4	4	100	
Koondrook	Quarterly	4	<0.05	<0.05	<0.05	Yes	4	<0.3	<0.3	<0.3	Yes	4	<0.3	<0.3	<0.3	Yes	4	4	100	
Lake Boga	*	*	*	*	*	N/A	*	*	*	*	N/A	*	*	*	*	*	*	*	*	N/A
Merbein	*	*	*	*	*	N/A	*	*	*	*	N/A	*	*	*	*	*	*	*	*	N/A
Mildura	Quarterly	6*	0.06	<0.05	0.04	Yes	5	<0.3	<0.3	<0.3	Yes	4	<0.3	<0.3	<0.3	Yes	4	4	100	
Murrabit	Quarterly	4	0.08	<0.05	0.06	Yes	4	<0.3	<0.3	<0.3	Yes	4	<0.3	<0.3	<0.3	Yes	4	4	100	
Nyah	*	*	*	*	*	N/A	*	*	*	*	N/A	*	*	*	*	*	*	*	*	N/A
Nyah West	*	*	*	*	*	N/A	*	*	*	*	N/A	*	*	*	*	*	*	*	*	N/A
Piangil	Quarterly	4	<0.05	<0.05	<0.05	Yes	4	<0.3	<0.3	<0.3	Yes	4	<0.3	<0.3	<0.3	Yes	4	4	100	
Red Cliffs	Quarterly	4	0.05	<0.05	0.03	Yes	4	<0.3	<0.3	<0.3	Yes	4	<0.3	<0.3	<0.3	Yes	4	4	100	
Swan Hill	Quarterly	4	0.05	<0.05	0.05	Yes	4	<0.3	<0.3	<0.3	Yes	4	<0.3	<0.3	<0.3	Yes	4	4	100	
Woorinen South	*	*	*	*	*	N/A	*	*	*	*	N/A	*	*	*	*	*	*	*	*	N/A

* there were six samples reported for the Mildura supply as both the Mildura & Midura West WTP's were operating simultaneously for two of the quarterly sampling events

Note: the Robinvale water treatment plant is the only LMW treatment plant with fluoridation. Analytical results for samples taken from the Robinvale reticulation each week are presented in the table below.

2007/2008							2006/2007					2005/2006				
Water Sampling Locality	Frequency of sampling	No. of samples	Max mg/L	Min mg/L	Average mg/L	Complying (Yes/No)	No. of samples	Max mg/L	Min mg/L	Average mg/L	Complying (Yes/No)	No. of samples	Max mg/L	Min mg/L	Average mg/L	Complying (Yes/No)
Robinvale	Weekly	52	1.00	0.59	0.76	Yes	59	0.90	0.50	0.75	Yes	13	0.84	0.66	N/A	Yes

Table 3.24 Gross Alpha Activity (Bq/L)

Guideline Value: 0.1 Bq/L

2005/2006					
Water Sampling Locality	Frequency of sampling	No. of samples	Max Bq/L	Min Bq/L	Complying (Yes/No)
Irymple		*	*	*	*
Kerang	5 yearly	1	<0.012	<0.012	Yes
Koondrook	5 yearly	1	<0.012	<0.012	Yes
Lake Boga		*	*	*	*
Merbein		*	*	*	*
Mildura	5 yearly	1	0.017	0.017	Yes
Murrabit	5 yearly	1	0.022	0.022	Yes
Nyah		*	*	*	*
Nyah West		*	*	*	*
Piangil	5 yearly	1	0.014	0.014	Yes
Red Cliffs	5 yearly	1	0.022	0.022	Yes
Robinvale	5 yearly	1	<0.014	<0.014	Yes
Swan Hill	5 yearly	1	<0.013	<0.013	Yes
Woorinen South		*	*	*	*

Table 3.25 Gross Beta Activity (Bq/L)

Guideline Value: 0.5 Bq/L

2005/2006					
Water Sampling Locality	Frequency of sampling	No. of samples	Max Bq/L	Min Bq/L	Complying (Yes/No)
Irymple		*	*	*	*
Kerang	5 yearly	1	0.05	0.05	Yes
Koondrook	5 yearly	1	0.049	0.049	Yes
Lake Boga		*	*	*	*
Merbein		*	*	*	*
Mildura	5 yearly	1	0.072	0.072	Yes
Murrabit	5 yearly	1	0.077	0.077	Yes
Nyah		*	*	*	*
Nyah West		*	*	*	*
Piangil	5 yearly	1	0.069	0.069	Yes
Red Cliffs	5 yearly	1	0.069	0.069	Yes
Robinvale	5 yearly	1	0.069	0.069	Yes
Swan Hill	5 yearly	1	0.063	0.063	Yes
Woorinen South		*	*	*	*

Note: there was no sampling for radionuclides for 2007-2008 based on the ADWG recommendation of a sampling frequency of 5 yearly for radionuclides in surface waters. It is expected that values for 2007/2008 would be comparable to the 2005/2006 results, and other historical radionuclide results.

Table 3.26 Lead (mg/L)

Health Related Guideline Value: 0.01mg/L

2007/2008						2006/2007				2005/2006				2004/2005		
Water Sampling Locality	Frequency of sampling	No. of samples	Max mg/L	Min mg/L	Complying (Yes/No)	No. of samples	Max mg/L	Min mg/L	Complying (Yes/No)	No. of samples	Max mg/L	Min mg/L	Complying (Yes/No)	No. of samples	No. complying	% complying
Irymple	Quarterly	4	<0.001	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Kerang	Quarterly	4	<0.001	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Koondrook	Quarterly	4	<0.001	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Lake Boga	Quarterly	4	<0.001	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Merbein	Quarterly	4	<0.001	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Mildura	Quarterly	4	<0.001	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Murrabit	Quarterly	4	<0.001	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Nyah	Quarterly	4	<0.001	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Nyah West	Quarterly	4	<0.001	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Piangil	Quarterly	4	<0.001	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Red Cliffs	Quarterly	4	0.002	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Robinvale	Quarterly	4	<0.001	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Swan Hill	Quarterly	4	<0.001	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Woorinen South	Quarterly	4	<0.001	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100

Table 3.27 Nickel (mg/L)

Health Related Guideline Value: 0.02mg/L

2007/2008						2006/2007				2005/2006				2004/2005		
Water Sampling Locality	Frequency of sampling	No. of samples	Max mg/L	Min mg/L	Complying (Yes/No)	No. of samples	Max mg/L	Min mg/L	Complying (Yes/No)	No. of samples	Max mg/L	Min mg/L	Complying (Yes/No)	No. of samples	No. complying	% complying
Irymple	Quarterly	4	<0.001	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Kerang	Quarterly	4	<0.001	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Koondrook	Quarterly	4	<0.001	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Lake Boga	Quarterly	4	<0.001	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Merbein	Quarterly	4	<0.001	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Mildura	Quarterly	4	<0.001	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Murrabit	Quarterly	4	0.001	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Nyah	Quarterly	4	<0.001	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Nyah West	Quarterly	4	<0.001	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Piangil	Quarterly	4	<0.001	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Red Cliffs	Quarterly	4	<0.001	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Robinvale	Quarterly	4	<0.001	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Swan Hill	Quarterly	4	<0.001	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Woorinen South	Quarterly	4	<0.001	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100

Table 3.28 Zinc (mg/L)

Health Related Guideline Value: 3.0mg/L

2007/2008						2006/2007				2005/2006				2004/2005		
Water Sampling Locality	Frequency of sampling	No. of samples	Max mg/L	Min mg/L	Complying (Yes/No)	No. of samples	Max mg/L	Min mg/L	Complying (Yes/No)	No. of samples	Max mg/L	Min mg/L	Complying (Yes/No)	No. of samples	No. complying	% complying
Irymple	Quarterly	4	0.007	0.002	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Kerang	Quarterly	4	0.003	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Koondrook	Quarterly	4	0.016	0.010	Yes	4	0.02	<0.01	Yes	4	0.011	<0.010	Yes	4	4	100
Lake Boga	Quarterly	4	0.004	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Merbein	Quarterly	4	0.015	0.003	Yes	4	0.01	<0.01	Yes	4	0.014	<0.010	Yes	4	4	100
Mildura	Quarterly	4	0.010	0.002	Yes	4	<0.01	<0.01	Yes	4	0.01	<0.010	Yes	4	4	100
Murrabit	Quarterly	4	0.020	0.007	Yes	4	0.01	<0.01	Yes	4	0.03	<0.010	Yes	4	4	100
Nyah	Quarterly	4	0.009	0.006	Yes	4	0.011	<0.01	Yes	4	0.021	<0.010	Yes	4	4	100
Nyah West	Quarterly	4	0.009	0.005	Yes	4	0.012	<0.01	Yes	4	0.012	<0.010	Yes	4	4	100
Piangil	Quarterly	4	0.008	0.004	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Red Cliffs	Quarterly	4	0.020	0.009	Yes	4	0.015	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Robinvale	Quarterly	4	0.012	0.003	Yes	4	0.02	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Swan Hill	Quarterly	4	0.008	<0.001	Yes	4	<0.01	<0.01	Yes	4	0.057	<0.010	Yes	4	4	100
Woorinen South	Quarterly	4	0.006	0.002	Yes	4	<0.01	<0.01	Yes	4	0.014	<0.010	Yes	4	4	100

Table 3.29 Nitrate Nitrogen (mg/L)

Health Related Guideline Value: 50.0mg/L

2007/2008						2006/2007				2005/2006				2004/2005		
Water Sampling Locality	Frequency of sampling	No. of samples	Max mg/L	Min mg/L	Complying (Yes/No)	No. of samples	Max mg/L	Min mg/L	Complying (Yes/No)	No. of samples	Max mg/L	Min mg/L	Complying (Yes/No)	No. of samples	No. complying	% complying
Irymple	Quarterly	4	0.02	<0.01	Yes	4	0.05	<0.01	Yes	4	0.042	<0.010	Yes	4	4	100
Kerang	Quarterly	4	0.35	<0.01	Yes	4	0.12	0.019	Yes	4	0.1	<0.010	Yes	4	4	100
Koondrook	Quarterly	4	0.14	<0.01	Yes	4	0.12	<0.01	Yes	4	0.065	<0.010	Yes	4	4	100
Lake Boga	Quarterly	4	0.12	<0.01	Yes	4	0.02	<0.01	Yes	4	0.06	0.014	Yes	4	4	100
Merbein	Quarterly	4	0.16	<0.01	Yes	4	0.03	<0.01	Yes	4	0.26	<0.010	Yes	4	4	100
Mildura	Quarterly	4	0.03	<0.01	Yes	4	0.05	<0.01	Yes	4	0.04	<0.010	Yes	4	4	100
Murrabit	Quarterly	4	0.33	0.16	Yes	4	0.15	0.023	Yes	4	0.086	<0.010	Yes	4	4	100
Nyah	Quarterly	4	<0.01	<0.01	Yes	4	0.02	<0.01	Yes	4	0.045	0.025	Yes	4	4	100
Nyah West	Quarterly	4	<0.01	<0.01	Yes	4	0.02	<0.01	Yes	4	0.071	<0.010	Yes	4	4	100
Piangil	Quarterly	4	0.07	<0.01	Yes	4	0.03	<0.01	Yes	4	0.03	<0.010	Yes	4	4	100
Red Cliffs	Quarterly	4	<0.01	<0.01	Yes	4	0.03	<0.01	Yes	4	0.071	<0.010	Yes	4	4	100
Robinvale	Quarterly	4	0.03	<0.01	Yes	4	0.12	<0.01	Yes	4	0.099	<0.010	Yes	4	4	100
Swan Hill	Quarterly	4	0.07	<0.01	Yes	4	0.02	<0.01	Yes	4	0.025	<0.010	Yes	4	4	100
Woorinen South	Quarterly	4	0.01	<0.01	Yes	4	0.02	<0.01	Yes	4	0.054	<0.010	Yes	4	4	100

Table 3.30 Cyanide (mg/L)

Health Related Guideline Value: 0.08mg/L

2007/2008						2006/2007				2005/2006				2004/2005		
Water Sampling Locality	Frequency of sampling	No. of samples	Max mg/L	Min mg/L	Complying (Yes/No)	No. of samples	Max mg/L	Min mg/L	Complying (Yes/No)	No. of samples	Max mg/L	Min mg/L	Complying (Yes/No)	No. of samples	No. complying	% complying
Irymple	Quarterly	4	<0.005	<0.005	Yes	4	<0.01	<0.005	Yes	4	<0.010	<0.010	Yes	4	4	100
Kerang	Quarterly	4	<0.005	<0.005	Yes	4	<0.01	<0.005	Yes	4	<0.010	<0.010	Yes	4	4	100
Koondrook	Quarterly	4	<0.005	<0.005	Yes	4	<0.01	<0.005	Yes	4	<0.010	<0.010	Yes	4	4	100
Lake Boga	Quarterly	4	<0.005	<0.005	Yes	4	<0.01	<0.005	Yes	4	<0.010	<0.010	Yes	4	4	100
Merbein	Quarterly	4	<0.005	<0.005	Yes	4	<0.01	<0.005	Yes	4	<0.010	<0.010	Yes	4	4	100
Mildura	Quarterly	4	<0.005	<0.005	Yes	4	<0.01	<0.005	Yes	4	<0.010	<0.010	Yes	4	4	100
Murrabit	Quarterly	4	<0.005	<0.005	Yes	4	<0.01	<0.005	Yes	4	<0.010	<0.010	Yes	4	4	100
Nyah	Quarterly	4	<0.005	<0.005	Yes	4	<0.01	<0.005	Yes	4	<0.010	<0.010	Yes	4	4	100
Nyah West	Quarterly	4	<0.005	<0.005	Yes	4	<0.01	<0.005	Yes	4	<0.010	<0.010	Yes	4	4	100
Piangil	Quarterly	4	<0.005	<0.005	Yes	4	<0.01	<0.005	Yes	4	<0.010	<0.010	Yes	4	4	100
Red Cliffs	Quarterly	4	<0.005	<0.005	Yes	4	<0.01	<0.005	Yes	4	<0.010	<0.010	Yes	4	4	100
Robinvale	Quarterly	4	<0.005	<0.005	Yes	4	<0.01	<0.005	Yes	4	<0.010	<0.010	Yes	4	4	100
Swan Hill	Quarterly	4	<0.005	<0.005	Yes	4	<0.01	<0.005	Yes	4	<0.010	<0.010	Yes	4	4	100
Woorinen South	Quarterly	4	<0.005	<0.005	Yes	4	<0.01	<0.005	Yes	4	<0.010	<0.010	Yes	4	4	100

Table 3.31 Chromium (mg/L)

Health Related Guideline Value: 0.05mg/L

2007/2008						2006/2007				2005/2006				2004/2005		
Water Sampling Locality	Frequency of sampling	No. of samples	Max mg/L	Min mg/L	Complying (Yes/No)	No. of samples	Max mg/L	Min mg/L	Complying (Yes/No)	No. of samples	Max mg/L	Min mg/L	Complying (Yes/No)	No. of samples	No. complying	% complying
Irymple	Quarterly	4	<0.001	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Kerang	Quarterly	4	<0.001	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Koondrook	Quarterly	4	<0.001	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Lake Boga	Quarterly	4	<0.001	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Merbein	Quarterly	4	<0.001	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Mildura	Quarterly	4	<0.001	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Murrabit	Quarterly	4	<0.001	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Nyah	Quarterly	4	<0.001	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Nyah West	Quarterly	4	<0.001	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Piangil	Quarterly	4	<0.001	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Red Cliffs	Quarterly	4	<0.001	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Robinvale	Quarterly	4	<0.001	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Swan Hill	Quarterly	4	<0.001	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Woorinen South	Quarterly	4	<0.001	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100

Table 3.32 Cadmium (mg/L)

Health Related Guideline Value: 0.002mg/L

2006/2007						2006/2007				2005/2006				2004/2005		
Water Sampling Locality	Frequency of sampling	No. of samples	Max mg/L	Min mg/L	Complying (Yes/No)	No. of samples	Max mg/L	Min mg/L	Complying (Yes/No)	No. of samples	Max mg/L	Min mg/L	Complying (Yes/No)	No. of samples	No. complying	% complying
Irymple	Quarterly	4	<0.0002	<0.0002	Yes	4	<0.001	<0.001	Yes	4	<0.0010	<0.0010	Yes	4	4	100
Kerang	Quarterly	4	<0.0002	<0.0002	Yes	4	<0.001	<0.001	Yes	4	<0.0010	<0.0010	Yes	4	4	100
Koondrook	Quarterly	4	<0.0002	<0.0002	Yes	4	<0.001	<0.001	Yes	4	<0.0010	<0.0010	Yes	4	4	100
Lake Boga	Quarterly	4	<0.0002	<0.0002	Yes	4	<0.001	<0.001	Yes	4	<0.0010	<0.0010	Yes	4	4	100
Merbein	Quarterly	4	<0.0002	<0.0002	Yes	4	<0.001	<0.001	Yes	4	<0.0010	<0.0010	Yes	4	4	100
Mildura	Quarterly	4	<0.0002	<0.0002	Yes	4	<0.001	<0.001	Yes	4	<0.0010	<0.0010	Yes	4	4	100
Murrabit	Quarterly	4	<0.0002	<0.0002	Yes	4	<0.001	<0.001	Yes	4	<0.0010	<0.0010	Yes	4	4	100
Nyah	Quarterly	4	<0.0002	<0.0002	Yes	4	<0.001	<0.001	Yes	4	<0.0010	<0.0010	Yes	4	4	100
Nyah West	Quarterly	4	<0.0002	<0.0002	Yes	4	<0.001	<0.001	Yes	4	<0.0010	<0.0010	Yes	4	4	100
Piangil	Quarterly	4	<0.0002	<0.0002	Yes	4	<0.001	<0.001	Yes	4	<0.0010	<0.0010	Yes	4	4	100
Red Cliffs	Quarterly	4	<0.0002	<0.0002	Yes	4	<0.001	<0.001	Yes	4	<0.0010	<0.0010	Yes	4	4	100
Robinvale	Quarterly	4	<0.0002	<0.0002	Yes	4	<0.001	<0.001	Yes	4	<0.0010	<0.0010	Yes	4	4	100
Swan Hill	Quarterly	4	<0.0002	<0.0002	Yes	4	<0.001	<0.001	Yes	4	<0.0010	<0.0010	Yes	4	4	100
Woorinen South	Quarterly	4	<0.0002	<0.0002	Yes	4	<0.001	<0.001	Yes	4	<0.0010	<0.0010	Yes	4	4	100

Table 3.33 Copper (mg/L)

Health Related Guideline Value: 2mg/L

2007/2008						2006/2007				2005/2006				2004/2005		
Water Sampling Locality	Frequency of sampling	No. of samples	Max mg/L	Min mg/L	Complying (Yes/No)	No. of samples	Max mg/L	Min mg/L	Complying (Yes/No)	No. of samples	Max mg/L	Min mg/L	Complying (Yes/No)	No. of samples	No. complying	% complying
Irymple	Quarterly	4	0.005	0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Kerang	Quarterly	4	0.003	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Koondrook	Quarterly	4	0.004	0.002	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Lake Boga	Quarterly	4	0.002	<0.001	Yes	4	0.021	<0.01	Yes	4	0.033	<0.010	Yes	4	4	100
Merbein	Quarterly	4	0.015	0.003	Yes	4	0.07	<0.01	Yes	4	0.014	<0.010	Yes	4	4	100
Mildura	Quarterly	4	0.009	0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Murrabit	Quarterly	4	0.005	0.005	Yes	4	<0.01	<0.01	Yes	4	<0.011	<0.010	Yes	4	4	100
Nyah	Quarterly	4	0.003	0.001	Yes	4	<0.01	<0.01	Yes	4	0.028	<0.010	Yes	4	4	100
Nyah West	Quarterly	4	<0.001	0.001	Yes	4	<0.01	<0.01	Yes	4	0.041	<0.010	Yes	4	4	100
Piangil	Quarterly	4	0.002	0.001	Yes	4	<0.01	<0.01	Yes	4	0.076	<0.010	Yes	4	4	100
Red Cliffs	Quarterly	4	0.012	0.003	Yes	4	0.018	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Robinvale	Quarterly	4	0.010	0.005	Yes	4	0.04	<0.01	Yes	4	0.013	<0.010	Yes	4	4	100
Swan Hill	Quarterly	4	0.019	0.006	Yes	4	0.01	<0.01	Yes	4	0.023	<0.010	Yes	4	4	100
Woorinen South	Quarterly	4	0.006	0.003	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100

Table 3.34 Manganese (mg/L)
Health Related Guideline Value: 0.5mg/L

2007/2008						2006/2007				2005/2006				2004/2005		
Water Sampling Locality	Frequency of sampling	No. of samples	Max mg/L	Min mg/L	Complying (Yes/No)	No. of samples	Max mg/L	Min mg/L	Complying (Yes/No)	No. of samples	Max mg/L	Min mg/L	Complying (Yes/No)	No. of samples	No. complying	% complying
Irymple	Quarterly	4	0.002	0.002	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Kerang	Quarterly	4	0.002	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Koondrook	Quarterly	4	0.014	0.004	Yes	4	<0.01	<0.01	Yes	4	0.01	<0.010	Yes	4	4	100
Lake Boga	Quarterly	4	<0.001	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Merbein	Quarterly	4	0.003	0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Mildura	Quarterly	4	0.003	0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Murrabit	Quarterly	4	0.100	0.005	Yes	4	0.042	<0.01	Yes	4	0.19	<0.010	Yes	4	4	100
Nyah	Quarterly	4	<0.001	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Nyah West	Quarterly	4	<0.001	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Piangil	Quarterly	4	0.100	0.002	Yes	4	<0.01	<0.01	Yes	4	0.021	<0.010	Yes	4	4	100
Red Cliffs	Quarterly	4	0.013	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Robinvale	Quarterly	4	0.008	0.002	Yes	4	<0.01	<0.01	Yes	4	0.01	<0.010	Yes	4	4	100
Swan Hill	Quarterly	4	<0.001	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100
Woorinen South	Quarterly	4	<0.001	<0.001	Yes	4	<0.01	<0.01	Yes	4	<0.010	<0.010	Yes	4	4	100

3.8 Aesthetics

3.8.1 Results

Table 3.35 pH
Aesthetic Guideline Value: 6.5 - 8.5 UNITS

2007/2008					2006/2007			2005/2006			2004/2005		
Water Sampling Locality	Frequency of sampling	No. of samples	pH (pH units)		No. of samples	pH (pH units)		No. of samples	pH (pH units)		No. of samples	pH (pH units)	
			Max	Min		Max	Min		Max	Min		Max	Min
Irymple	Weekly	52	8.4	6.8	52	7.9	6.8	52	7.7	6.8	52	7.8	6.8
Kerang	Weekly	52	7.9	6.5	52	8.1	6.6	52	7.5	6.8	52	7.7	6.7
Koondrook	Weekly	52	7.8	6.5	52	7.8	6.7	52	7.5	6.7	52	9.2	6.8
Lake Boga	Weekly	52	7.9	6.6	52	7.7	6.8	52	7.6	6.9	52	9.3	6.9
Merbein	Weekly	52	7.8	6.9	52	7.8	6.7	52	8.3	6.7	52	7.9	6.7
Mildura	Weekly	52	8.3	6.9	52	8.0	6.6	52	7.9	6.9	52	7.8	6.8
Murrabit	Weekly	52	8.2	6.2*	52	7.8	6.6	52	7.7	6.8	52	8.3	6.7
Nyah	Weekly	52	7.8	6.6	52	7.7	6.8	52	7.5	6.7	52	7.4	6.7
Nyah West	Weekly	52	7.6	6.5	52	7.7	6.8	52	7.6	6.7	52	7.5	6.7
Piangil	Weekly	52	7.9	6.4**	52	7.6	6.7	52	7.7	6.9	52	7.6	6.6
Red Cliffs	Weekly	52	8.1	6.8	52	7.7	6.9	52	8.8	6.8	52	8.7	6.8
Robinvale	Weekly	52	7.9	6.7	52	7.9	6.5	52	8.6	7.0	52	7.9	6.9
Swan Hill	Weekly	52	8.0	6.7	52	7.8	6.8	52	7.6	6.8	52	7.4	6.6
Woorinen South	Weekly	52	7.6	6.6	52	7.7	6.8	52	7.6	6.7	52	7.7	6.6

3.35.1 Actions in relation to non-compliance;

Repeat samples taken from the same reticulation sites following notification of the low pH values for **Piangil in August and *Murrabit in January resulted in pH values which complied with the guideline value. No flushing of mains was required.

Table 3.36 Colour

Aesthetic Guideline Value: 15 HU

2007/2008				2006/2007				2005/2006				2004/2005			
Water Sampling Locality	Frequency of sampling	No. of samples	Colour (HU)		No. of samples	Colour (HU)		No. of samples	Colour (HU)		No. of samples	Colour (HU)			
			Max	Min		Max	Min		Max	Min		Max	Min		
Irymple	Monthly	12	6	<2	12	4	<2	12	<2	<2	12	5	<5		
Kerang	Monthly	12	6	<2	12	2	<2	12	<2	<2	12	<5	<5		
Koondrook	Monthly	12	6	<2	12	2	<2	12	<5	<2	12	5	<5		
Lake Boga	Monthly	12	6	<2	12	4	<2	12	<2	<2	12	10	<5		
Merbein	Monthly	12	8	<2	12	4	<2	12	<2	<2	12	10	<5		
Mildura	Monthly	12	6	<2	12	4	<2	12	<2	<2	12	<5	<5		
Murrabit	Monthly	12	9	<2	12	4	<2	12	<2	<2	12	<5	<5		
Nyah	Monthly	12	7	<2	12	2	<2	12	5	<2	12	<5	<5		
Nyah West	Monthly	12	5	<2	12	4	<2	12	<2	<2	12	<5	<5		
Piangil	Monthly	12	6	<2	12	4	<2	12	<2	<2	12	<5	<5		
Red Cliffs	Monthly	12	6	<2	12	4	<2	12	<5	<2	12	10	<5		
Robinvale	Monthly	12	7	<2	12	4	<2	12	<2	<2	12	5	<5		
Swan Hill	Monthly	12	6	<2	12	2	<2	12	<5	<2	12	10	<5		
Woorinen South	Monthly	12	7	<2	12	4	<2	12	<2	<2	12	5	<5		

Table 3.37 Iron (mg/L)

Aesthetic Guideline Value: 0.3mg/L

2007/2008					2006/2007			2005/2006			2004/2005		
Water Sampling Locality	Frequency of sampling	No. of samples	Max mg/L	Min mg/L	No. of samples	Max mg/L	Min mg/L	No. of samples	Max mg/L	Min mg/L	No. of samples	Max mg/L	Min mg/L
Irymple	Quarterly	4	0.09	0.04	4	0.052	<0.05	4	0.075	<0.050	4	0.050	0.050
Kerang	Quarterly	4	0.05	0.02	4	0.069	<0.05	4	0.076	<0.050	4	0.050	0.050
Koondrook	Quarterly	4	0.03	<0.02	4	<0.05	<0.05	4	<0.050	<0.050	4	0.050	0.050
Lake Boga	Quarterly	4	0.05	<0.02	4	<0.05	<0.05	4	<0.050	<0.050	4	0.050	0.050
Merbein	Quarterly	4	0.08	0.04	4	0.052	<0.05	4	0.081	<0.050	4	0.050	0.050
Mildura	Quarterly	4	0.11	0.04	4	0.053	<0.05	4	0.075	<0.050	4	0.050	0.050
Murrabit	Quarterly	4	0.06	0.02	4	<0.05	<0.05	4	<0.050	<0.050	4	0.050	0.050
Nyah	Quarterly	4	0.03	<0.02	4	<0.05	<0.05	4	<0.050	<0.050	4	0.050	0.050
Nyah West	Quarterly	4	0.04	<0.02	4	<0.05	<0.05	4	<0.050	<0.050	4	0.050	0.050
Piangil	Quarterly	4	0.03	<0.02	4	<0.05	<0.05	4	0.052	<0.050	4	0.050	0.050
Red Cliffs	Quarterly	4	0.12	0.04	4	0.064	<0.05	4	0.071	<0.050	4	0.050	0.050
Robinvale	Quarterly	4	0.06	<0.02	4	<0.05	<0.05	4	<0.050	<0.050	4	0.050	0.050
Swan Hill	Quarterly	4	0.03	<0.02	4	<0.05	<0.05	4	<0.050	<0.050	4	0.050	0.050
Woorinen South	Quarterly	4	0.04	<0.02	4	<0.05	<0.05	4	<0.050	<0.050	4	0.220	0.050

Organochlorine pesticides were tested quarterly for three quarters of the reporting period, in the raw water at all treatment plants. All results were below detection limits. For the remaining quarter, analysis of a group of pesticides, atrazine, chlorpyrifos, chlorothalonil, methomyl, molinate, maldison & diuron, commonly used in areas along the Murray River was undertaken. All results were below detection limits apart from atrazine in the Murray River water at three locations, Koondrook - 0.007µg/L, Mildura - 0.006µg/L & Swan Hill - 0.012µg/L. The Australian Drinking Water Guidelines (2004) health related guideline value is 40µg/L.

Blue green algae monitoring, samples of raw water entering plants were taken monthly from June - October, inclusive, for cell enumeration and identification. During the summer months sampling frequency was increased to weekly, as required in Lower Murray Water's 'Blue Green Algal Alert/Action Levels plan. No cases of elevated cell numbers requiring action as per the 'Blue Green Algal Alert/Action Levels plan were detected during the reporting period.

As there were no trigger events, such as heavy rainfall events, during the reporting period, no samples of raw water entering plants for *Cryptosporidium/Giardia* testing were taken.

3.9 Analysis of results

There are no significant differences in water quality supplied to the localities in the Lower Murray Water region of urban drinking water supply. This is to be expected given that all supplies are fully treated using similar treatment chemicals and the water is generally sourced from the Murray River. Refer to the water quality tables 3.1 -3.44 for a comparison with the 2004-05, 2005-06, 2006-2007 and 2007-2008 results.

The water quality monitoring results for the 2007-2008 period are similar to those of the previous few years with no trends evident.

Table 3.5: Compliance with Schedule 2 of the Regulations - water quality parameters

	2004-2005	2005-2006	2006-2007	2007-2008
Localities	93%	100%	100%	86%
Customers	99.0%	100%	100%	92.5%

The decrease in the percentage of sampling localities as indicated in Table 3.5 above, which were compliant in 2007-2008, was due to the two aluminium failures, one at Kerang and one at Murrabit which occurred during the reporting period. For all other parameters the comparable figure for 2007/08 was 100%.

The percentage of Lower Murray Water customers supplied with drinking water that was compliant with each of the Schedule 2 parameters can also be seen in Table 3.5. The lower 2007-2008 value of 92.5% is again due to the two aluminium failures which occurred during the reporting period.

All fluoridation operational requirements as per the *Health (Fluoridation) Act 1973* were met during the reporting period at the Robinvale Water Treatment Plants.

Section 23 of the *Safe Drinking Water Act 2003* requires Lower Murray Water to make available for inspection by the public the results of any water quality monitoring program that we conduct on any drinking water supplied by us. Customers and members of the public may access drinking water quality data by contacting Lower Murray Water, see contact details provided below.

Note: further information on water quality details may be obtained by contacting Mr Keith Neaves, Manager Environmental Services at the Mildura office on ☎ 50513 445.

Water quality information for each locality which is updated quarterly, together with this Annual Drinking Water Quality report is available on our web site www.lmw.vic.gov.au.

4 EMERGENCY AND INCIDENT MANAGEMENT

There were no emergencies or incidents that could have affected the quality of the drinking water supplied by Lower Murray Water during the reporting period. The Corporation has an Emergency Management Plan with contingencies for incidents that may impact on water quality/supply.

There were no incidents that required reporting under section 22 of the Act during the reporting period.

5 COMPLAINTS RELATING TO WATER QUALITY

5.1 Complaints and responses

Type of complaint	No. of complaints	No. of complaints per 100 customers supplied
Discoloured water	20	0.07
Taste/odour	41	0.14
Blue water	0	0
Air in water	0	0
Suspected Illness	0	0
Other	1	<0.01

The number of complaints for the reporting period increased compared to 2006-2007.

This increase in taste & odour complaints was due to a taste and odour event that was experienced in the Mildura supply in the months of July 2007, February and March 2008. The taste and odour was due to metabolites produced by algae in the river water.

Powdered activated carbon dosing was implemented at the treatment plant to alleviate the problem.

The discoloured water complaints were generally due to instances when there had been burst mains or other works being carried out in the reticulation. These were addressed by flushing mains in the areas concerned. This problem has been exacerbated by the current water restrictions, whereby the air scouring program has been put on hold, and mains flushing is only done in response to customer complaints.

Complaints Handling Process

The Corporation has an electronic complaints recording program, Merit, for recording water quality complaints and directing the complaint to the relevant action officer to follow up the complainants. Each registered complaint has a time line associated with it, if the complaint review is not closed off within this time the complaint escalates to the actioning officer's supervisor.

Complaints received after hours via our 1800 phone number are also directed to the relevant officer the next working day for follow up with the complainants.

If the issue cannot be resolved over the phone, an officer attends the property of concern to discuss the complaint with the complainant and take samples of water for testing/tasting. If necessary, water mains in the area of concern will be flushed.

On completion of the complaint handling process, the details are recorded by the actioning officer and the complaint event closed off in Merit.

Monthly complaint summary reports for Board meetings and quarterly reports for Essential Services Commission reporting are prepared from the Merit data base.

The total of 62 complaints for the year equates to a rate of 0.21 per 100 assessments (total of 30,162 assessments).

6 Risk Management Plan Audit

In March 2008 the Department of Human Services, under section 11 of the *Safe Drinking Water Act 2003*, required Lower Murray Water to have its risk management plan audited by an approved auditor. The audit covered the period from 1 January 2006 to 31 December 2007.

The audit was completed in September 2008, and hence will be reported on in detail in the 2008-2009 Drinking Water Quality report. However we have been advised by the auditor that Lower Murray Water has complied with the obligations imposed by the Act during the audit period.

7 Undertakings under Section 30 of the Act

Lower Murray Water does not have any undertakings with the Department of Human Services.

8 REGULATED WATER AND NON POTABLE SUPPLIES

Section 6 of the *Safe Drinking Water Act 2003* allows the Minister for Health to declare any water that is not drinking water, but that may be supplied to the public in circumstances in which it may be mistaken as being drinking water, to be 'regulated water' for the purposes of the Act.

Following consultation between the Department of Human Services and Lower Murray Water, the Minister for Health declared the water supplied by Lower Murray Water to the Millewa water supply system as regulated water as per Section 6 of the Act.

The declaration was gazetted in the Victoria Government Gazette on 15 February

2007. Declaration as regulated water meant that Lower Murray Water had to prepare and implement a risk management plan for the Millewa water supply system, to protect public health.

The Millewa water supply system is a non potable water system and supplies an area which includes the towns of Meringur, Werrimull and Cullulleraine and also the surrounding rural properties in the Millewa district. The water is sourced from Lake Cullulleraine, which is filled directly from the Murray River via an earthen channel. The population served by this supply is estimated to be less than 250. The water supply system is primarily a stock and domestic water supply to dryland farmers in the Millewa area located to the west of Mildura. Water from Lake Cullulleraine is chlorinated as it is pumped into the system. The purpose for the chlorination is to control the nuisance growth *plumatella*, which if allowed to become established within a pipeline system can cause severe ongoing operational problems.

The dryland area serviced by the Millewa supply covers an area of approximately 243,500 hectares. The total number of connections for the supply to the dryland farming properties is 252. Over the years neighbouring properties have been aggregated to provide larger more economically viable farms, so that in most cases several properties are now owned by the one owner.

There is an open 182ML earthen water storage within the Millewa system, located at Bambill South which supplies head for the system when the Lake Cullulleraine pumps are not operating 24/7, during the cooler months of the year.

Lower Murray Water also supplies untreated Murray River water, primarily for irrigation purposes, to the Robinvale, Merbein and Red Cliffs irrigation districts as well as regulating all Victorian private diverters, from Nyah to the SA border. Within the Robinvale irrigation district is a small group of 22 houses known as the Cloverdale area. This group of houses take a supply of water from irrigation channels in the area.

None of these untreated supplies are interconnected with the urban drinking water supplies managed by Lower Murray Water.

In response to the risk management plan requirements, Lower Murray Water has produced a pamphlet titled 'Living with an Untreated Water Supply', to advise the regulated water customers and also all other customers receiving an untreated (non potable) water supply. The pamphlet cautions that untreated water is not fit for such things as drinking, food preparation or cleaning teeth it also advises customers to take care when bathing and showering.

This pamphlet has been mailed to all customers who receive either regulated or untreated water. This will be done on a two yearly basis. All quarterly tariff notices to these customers also warn against human consumption of untreated water.

The pamphlet is also posted on the Corporation's web site. Refer to 3.8 above for the link to the site.

The Corporation plans to prepare a 'Welcome Kit' which will be supplied to all new customers connecting to a Lower Murray Water untreated water supply, or to new owners or occupiers of existing properties in untreated water supply areas. A copy of the pamphlet will be included in the kit.

The Corporation supplies 'Do Not Drink' signs free of cost to municipal councils and to any person/s requiring the signs, see photos below. A publicity campaign targeting the businesses, general public, the school, caravan parks, community groups etc was followed up with a visit to the townships of Werrimull, Meringur and Cullulleraine by a Lower Murray Water staff member to talk to businesses and groups within the towns regarding the untreated water supply.

The Mildura Rural City Council and the Swan Hill Rural City Council have been made aware of the pamphlet and the availability of the signs at no cost to them.

Sign erected at Wood Wood public amenity	'Do Not Drink' Sign
	

Mystic Park untreated water supply.

In May 2008, Lower Murray Water assumed responsibility for the Mystic Park untreated water supply, previously the responsibility of the Shire of Gannawarra. Some details on the supply are listed below.

- The Mystic Park non-drinking water supply is not chlorinated.
- The water is screened through a cylindrical screen filter, with automatic backwash & brush, with a 0.4mm aperture and pumped approximately 3.5km from Kangaroo Lake to the township.
- The town population is currently 34, with 16 serviced properties, including the hotel, recreation reserve and cenotaph. The hotel and recreation reserve are not yet connected. Currently there are 3 vacant properties still to be connected to the supply.

As this is also an untreated water supply, the risk management measures implemented for the regulated water and other untreated water supplied by Lower Murray Water, as outlined above, have also been implemented for the Mystic Park supply.

October 2008