

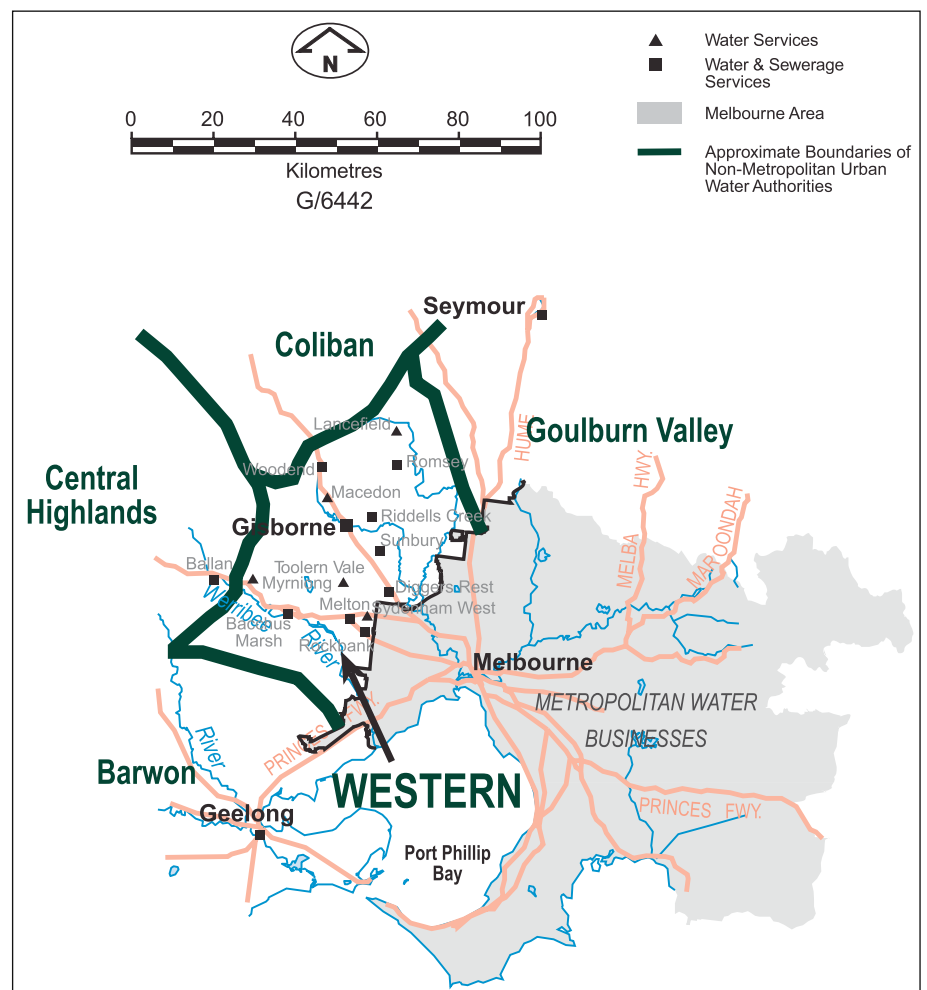
## Western Water

Head office: Sunbury

**Localities supplied with drinking water:** Bulla, Darley, Diggers Rest, Gisborne, Lancefield, Lerderderg, Macedon, Maddingley, Melton South, Merrimu, Mount Macedon, Myrning, Riddells Creek, Rockbank, Romsey, Sunbury, Toolern Vale and Woodend.

All drinking water supplies except those for Woodend and Lancefield receive fluoridated water. The Myrning and Romsey supplies were supplemented with fluoridated water from the Melbourne metropolitan supply system for part of 2007/08.

**Population supplied with drinking water:** approximately 134,810



### Performance against water quality standards

Drinking water supplied in all localities by Western Water during 2007/08 complied with the water quality standards.

Western Water advised that it does not use ozone-based chemicals for disinfection of drinking water. Therefore, sampling and analyses for bromate and formaldehyde

was not undertaken in 2007/08. Ozone-based disinfection by-products such as bromate and formaldehyde are not considered to be a risk in drinking water supplied by Western Water.

### Other water quality issues of potential health significance

All other parameters measured by Western Water as part of its drinking water quality monitoring program satisfied the relevant health-related guideline values set out in the 2004 *Australian Drinking Water Guidelines* during the reporting period.

In May 2007 the Department accepted a written undertaking from Western Water that addressed historical problems with the quality of the Lancefield supply system. The undertaking concluded in March 2008, with the completion of the Lancefield water filtration plant.

For detailed water quality data, including data about other aesthetic characteristics of the water and data about source (untreated) water quality, as well as details on Western Water's undertaking for Lancefield, please refer to Western Water's annual drinking water quality report for 2007/08.

### Risk management plan audit

Western Water's risk management plan audit was completed in May 2008.

Western Water was found to have complied with the obligations imposed by the Act, although the auditor identified a number of continuous improvement opportunities. These improvement opportunities, along with Western Water's response, are detailed below.

Continuous Improvement Opportunity	Proposed Action
Update the risk management plan to reflect changes in operational practices, develop more simplified control plans at individual plant sites for operator usage and develop new control plans for new plants.	The plans will be reviewed and updated during the 2008/09 review.
Develop an implementation and preventative strategy document to allow for better clarity of planned actions, its progress and implementation.	Western Water's Public Health Policy and Drinking Water Policy have been updated to align them with the risk management plan.
Rectify incomplete implementation of all actions identified in the Water Quality Improvement Plan designed to manage water quality risks.	The Water Quality Improvement Plan will be updated based on consideration of updated risk assessment from the review.
Regularly update relevant agencies contact details in the risk management plans.	References will be made in the updated RMP to Western Water's incident management contact list.
Suggested consideration of a back end electronic scanning program for automatic daily scanning of all data with alerts given to Western Water staff upon any irregularities.	The option on the usage of a back end electronic scanning program will be investigated.
Evaluation of major sources of uncertainty in relations to hazards and actions to reduce these uncertainties in the plan.	Better explanation of the process of assessment including on how uncertainty were identified and considered will be performed during the review.
Identify residual risks in the plan.	Better explanation of the residual risk will be conducted in the updated plan.
Identify alternatives or additional preventative measures to managing risks in the plan.	Better explanation of alternatives for managing risk will be fully documented in the risk management plan.

Continuous Improvement Opportunity	Proposed Action
Integrate onsite records with water quality data collected using SCADA and the Water Information Management System (WIMS).	Western Water will investigate available systems to integrate local site records with corporate system records. The risk management plan review will also look into how collated data from monitoring could be used to prevent shortfalls.
Improve the transfer and use of operational data collected from the field. A heavy reliance by operational staff on end point test results to evaluated system performance.	An integrated data capturing system for operational test will be investigated.
Develop a strict protocol for checking and control of chemicals delivered to site to ensure no risk of contamination of drinking water supplies.	Spot checks of chemical quality will be conducted during system audits. Identification of controls that currently exist and the updating of chemical delivery procedure will be performed as necessary.
Improve high result notification by the NATA accredited laboratory to Western Water relating to the acknowledgment and actions taken upon notification of the results.	The system contamination procedure will be amended to identify how high results could be acknowledged and actioned.

The Audit Certificate is included in Western Water's annual drinking water quality report for 2007/08.

### Water quality notifications

During 2007-08 the following water quality notifications were made to the department under section 22 of the Act:

Date	Supply	Issue	Action(s)
November 2007	Myrning	Detection of <i>Escherichia coli</i> at tank.	Boil water notice issued to affected customers, system was resampled and increased dosing of powdered activated carbon at the filtration plant. Tank was cleaned and reticulation mains were flushed and air scoured.
January 2008	Myrning	Detection of <i>Escherichia coli</i> at tank.	Tank was isolated, emptied, disinfected with sodium hypochlorite and re-filled and the entry hatch repaired to prevent rain from entering. Mains were flushed, system was inspected, follow-up samples were collected and were clear of <i>Escherichia coli</i> . Water tankers were deployed to minimise disruption of water supply to the residents of Myrning.
January 2008	Myrning	Detection of <i>Escherichia coli</i> at tank.	Tank was isolated, emptied, cleaned and spot dosed with sodium hypochlorite. The Myrning reticulation system was flushed and onsite testing conduct until a good chlorine residual was penetrating through the Myrning system. Supply was switched over to an alternative supply by tankers.

In relation to the November 2007 incident noted above, the Department's Communicable Disease Control Unit distributed a General Practitioner alert to Victorian Divisions of General Practice covering the area around Myrning. This was a precautionary measure designed to inform General Practitioners of any unusual events in their local area. No unusual events were observed during the incident period.

In addition to the above incidents, Western Water also managed two incidents relating to blue green algae blooms in water from Rosslynne, Merrimu and Pykes Creek reservoirs. These incidents were not reported to the Department, as they were managed without affecting drinking water supplied to customers.

For further information on the water quality incidents and events listed above, as well as details on Western Water's undertaking for Lancefield, please refer to Western Water's annual drinking water quality report for 2007–08.

### Customer complaints related to water quality

A summary of the customer complaints related to water quality that were recorded by Western Water during 2007–08 is provided in the table below.

Complaint Category	Number of water quality complaints	Number of complaints per 100 customers
Discoloured water	182	0.340
Taste / odour	20	0.037
Blue water	0	0
Air in water	8	0.015
Suspected illness	2	0.004
Other	9	0.017

Water quality complaint figures show an increasing trend in complaints for discoloured water, from 138 in 2006–07 to 182 in 2007–08, with a large number from the more populated Melton South and Sunbury localities. Western Water advised that it has relied heavily on water from Melbourne Water during 2007–08, in order to meet demands. Water sourced from Melbourne Water's protected catchments is unfiltered and as a result transports sediments into Western Water's distribution system. Lower water usage due to water restrictions, as well as Western Water's mains flushing approach, has culminated in the build up of more sediments during this reporting year than in recent years.

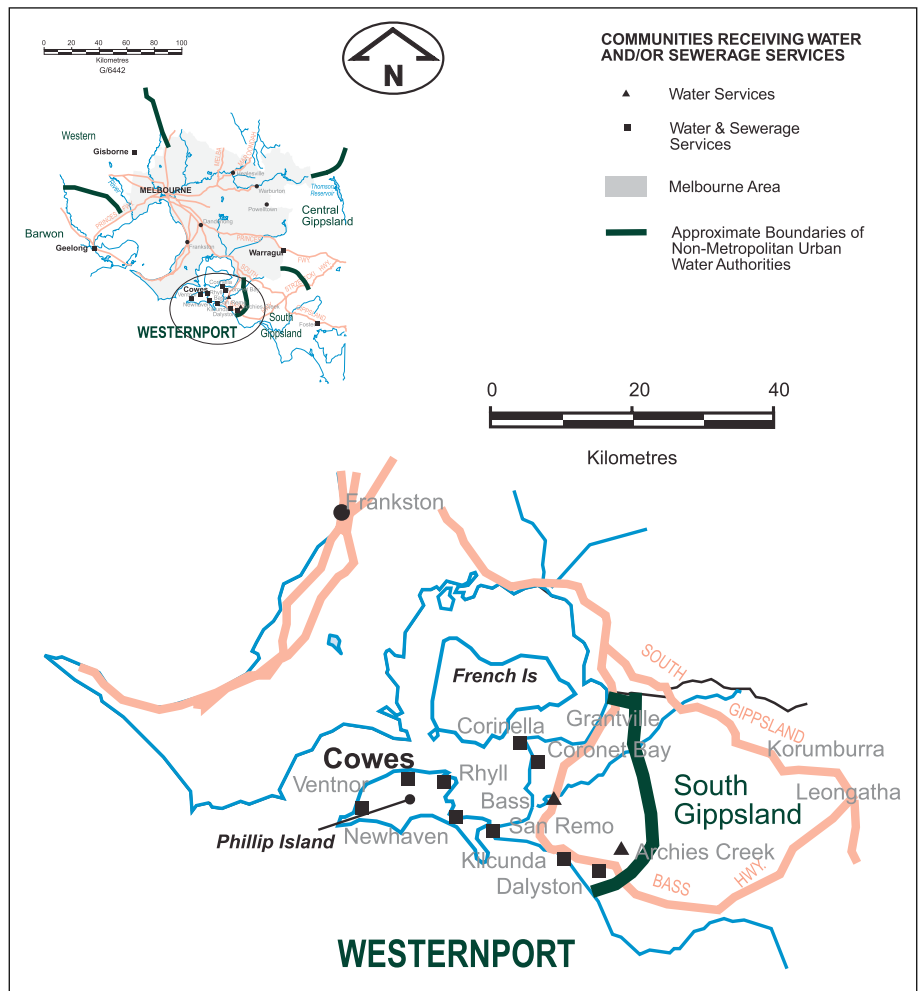
The number of taste and odour complaints decreased in 2007–08. The commissioning of water filtration plants in Lancefield and Myrning has seen improvements in the quality of water supplied to these localities, resulting in a decrease in the number of complaints.

## Westernport Water

Head office: Newhaven

Localities supplied with drinking water: Bass, Cape Woolamai, Corinella, Cowes, Grantville, Kilcunda, Rhyll, San Remo and Ventnor.

Population supplied with drinking water: Approximately 13,180, rising to 34,240 in peak holiday periods.



### Performance against water quality standards

Drinking water supplied in all localities by Westernport Water during 2007–08 complied with the water quality standards, except as noted in the table below.

Parameter	Localities not complying with water quality standards
Trihalomethanes	Grantville, Kilcunda, San Remo, Cape Woolamai, Rhyll, Cowes, Ventnor

Map prepared by, and used with the permission of, Department of Sustainability and Environment

Widespread high results for trihalomethanes were recorded in January and February 2008. A high result was also recorded in Rhyll in November 2007. Most of the values were only marginally above the standard. Westernport Water advised that non-complying localities were flushed when possible to minimise the accumulation of the precursors that lead to the formation of trihalomethanes.

Westernport Water also notified the department of high trihalomethane results for Rhyll, Corinella and Ventnor during July 2007, however this information was not submitted using the standard section 22 notification template. It was also unclear as to whether the July 2007 high result submitted for Corinella represented the quality of water in that locality, or in Cowes. The department is working with Westernport Water to ensure that data reporting obligations are clarified.

The number of non-compliances for trihalomethanes has been an on-going issue over the past few years. With the recent upgrade of the Ian Bartlett Water Purification Plant, which supplies all localities, Westernport Water advised that trihalomethane non-compliances will decrease in the future as plant operators are able to control the chlorine dosing more efficiently. A trihalomethane reduction strategy was developed by Westernport Water to address the elevated levels detected at several sites, particularly over the 2007–08 summer period. Trials were undertaken to reduce the natural organic matter levels in the treated water. Westernport Water found that the combination of regular air scouring, powdered activated carbon dosing at the purification plant and relocation of secondary disinfection sites would deliver improved performance of the system and reduce the trihalomethane levels.

Ozone is not used as a treatment chemical, therefore bromate and formaldehyde were not required to be monitored at the frequencies specified in the Regulations.

### Other water quality issues of potential health significance

All other parameters measured by Westernport Water as part of its drinking water quality monitoring program satisfied the relevant health-related guideline values set out in the 2004 *Australian Drinking Water Guidelines* during the reporting period.

For detailed water quality data, including data about aesthetic characteristics of the water, please refer to Westernport Water's annual drinking water quality report for 2007–08.

### Risk management plan audit

Westernport Water's risk management plan audit was completed in June 2008.

The audit found that Westernport Water did not comply with the obligations imposed by the Act. The auditor identified three major non-compliances, one minor non-compliance and a number of continuous improvement opportunities. This was predominately due to the lack of information in Westernport Water's risk management plan to address risks to water quality associated with:

- The possible presence of *Cryptosporidium* and *Giardia*;
- The possible presence of radiological parameters

- Procedures for consultation with other suppliers regarding risks to water quality (specifically South Gippsland Water).
- The lack of monitoring for pesticides or herbicides (assessed as a minor non-compliance).

The department accepted an undertaking from Westernport Water in relation to the audit findings. The undertaking specifies that the risks to water quality associated with *Cryptosporidium*, *Giardia*, and radiation will be identified and managed, with the details to be incorporated into Westernport Water's water quality risk management plan. The undertaking also sets out a procedure for consultation with South Gippsland Water regarding risks to water quality. The undertaking was finalised after the end of the current reporting period and will be discussed in more detail in the annual report for the 2008–09 reporting period.

The non-compliances, along with the auditor's recommended actions, which Westernport Water has undertaken to do, are detailed below.

Reason for non-compliance	Proposed Action
Risk management plan does not manage the risk of <i>Cryptosporidium</i> and <i>Giardia</i> being present in the water supply. The absence of a preventive strategy, monitoring programme or response protocol for the incidence of <i>Cryptosporidium</i> and <i>Giardia</i> .	<ul style="list-style-type: none"> <li>• Address the risk of the presence of <i>Cryptosporidium</i> or <i>Giardia</i> in the system of supply as a specific hazard, rather than an outcome of another event.</li> <li>• Implement a monitoring programme that includes event and baseline raw water monitoring.</li> <li>• Implement an incident management protocol to respond to detection of the organisms or related customer complaints, including corrective actions, increased raw water and treated water monitoring, communication with the public and other stakeholders.</li> </ul>
The risk management plan does not identify the risk of radiation.	Address the risk of radiation being present in water via the risk assessment process, the risk to human health of an incident or event where radiation is present in the system of supply, and the risk of its transfer. Include this in the risk management plan.
Lack of pesticide or herbicide monitoring	Implement a monitoring programme that includes event and baseline raw water monitoring.
No evidence of formal communication protocols regarding water quality exchange of water quality data between Westernport Water and South Gippsland Water.	Establish formal communication protocols with South Gippsland Water regarding water quality and the exchange of water quality data during periods that Lance Creek Reservoir water will be supplied to Westernport Water. However, Westernport Water has indicated that it is not planning to access this water in the foreseeable future.

In addition to the undertaking, Westernport Water also provided the department with details on the actions they intend to take with regard to further improvement opportunities and recommendations.

The audit certificate and more information in relation to the audit findings is included in Westernport Water's annual drinking water quality report for 2007–08.

## Water quality notifications

During 2007–08 the following water quality notifications were made to the department under section 22 of the Act:

Date	Supply	Issue	Action(s)
January – February 2008	Cape Woolamai, Cowes, Grantville, Kilcunda, San Remo, Rhyll, Ventnor	Elevated trihalomethanes in drinking water	Refer to text under the heading “Performance against water quality standards”
July 2007	Corinella <sup>#</sup> , Rhyll, Ventnor	Elevated trihalomethanes in drinking water	Refer to text under the heading “Performance against water quality standards” <sup>#</sup>
September 2007*	Bass, Rhyll	Elevated manganese and iron in drinking water	Flushing and resamples collected. Resample taken in October exceeded the aesthetic guideline value.
October 2007*	Grantville, Corinella, Cape Woolamai, Kilcunda	Elevated pH in drinking water	pH meter recalibrated and caustic soda dosing returned to normal.
October 2007	Kilcunda	Detection of <i>Escherichia coli</i> in drinking water	Reticulation system flushed, resample collected, no <i>Escherichia coli</i> detected.
October 2007	San Remo area (San Remo storage basin)	Detection of <i>Escherichia coli</i> in storage basin	Inlet chlorination increased, resample collected and returned a negative result.
November 2007	Rhyll	Elevated trihalomethanes in drinking water	Undertook dissolved organic carbon sampling on the reservoir raw water, as well as the treated water pre-chlorination. Also refer to text under the heading “Performance under water quality standards”

\* **Note:** Results for elevated pH, iron and manganese were reported to the Department by Westernport Water under section 22 of the Act. This was not mandatory, as the issues referred to during these months relate to levels above aesthetic guideline values in drinking water rather than health-related guideline values.

<sup>#</sup> It was unclear as to whether the notification for Corinella represented the quality of water in that locality, or in Cowes.

For further information on the water quality incidents and events listed above, please refer to Westernport Water’s annual drinking water quality report for 2007–08.

## Customer complaints related to water quality

A summary of the customer complaints related to water quality that were recorded by Westernport Water during 2007–08 is provided in the table below.

Complaint Category	Number of water quality complaints	Number of complaints per 100 customers
Discoloured water	117	0.80
Taste / odour	15	0.10
Blue water	3	0.02
Air in water	0	0
Suspected illness	1	< 0.01
Other	11	0.08

The number of complaints for discoloured water that were reported to Westernport Water during the 2007–08 period increased from 74 in the previous reporting period. The majority of these complaints occurred in November 2007, followed by August then July 2007.

Westernport Water advised that the increase of customer complaints for discoloured water for 2007-08 was due to the increased levels of iron and manganese in the system, which was one of the reasons for the subsequent air scouring conducted in the system.



Yarra Valley Water quickly implemented water quality sampling for the above mentioned by-products. The sampling results showed the concentration of the by-products were at low levels. Yarra Valley Water advised that they will ensure that these parameters are sampled for all chlorinated and chloraminated water supplies in the future in order to avoid the same mistake.

### Other water quality issues of potential health significance

During the reporting period, as part of its broader water quality monitoring program, Yarra Valley Water detected lead levels above the health-related guideline value of 0.01 mg/L set in the 2004 *Australian Drinking Water Guidelines*. In November 2007 one lead test result collected from a sampling tap in Mitcham showed a lead concentration of 0.028 mg/L. Localised flushing of water mains in the affected area was immediately undertaken. After flushing, lead levels in the water were found to be below 0.01 mg/L.

All other parameters measured by Yarra Valley Water as part of its drinking water quality monitoring program satisfied the relevant health guideline values detailed in the 2004 *Australian Drinking Water Guidelines* during the reporting period.

For detailed water quality data, including data about other aesthetic characteristics of the water, please refer to Yarra Valley Water's drinking water quality annual report for 2007–08.

### Risk management plan audit

Yarra Valley Water's risk management plan audit was completed in May 2008.

Yarra Valley Water was found to have complied with the obligations imposed by the Act, although the auditor identified five continuous improvement opportunities. These improvement opportunities, along with Yarra Valley Water's response, are detailed below.

Continuous Improvement Opportunity	Proposed Action
The hazard analysis is updated to highlight which preventive actions are most significant in reducing risks.	No action was proposed at this time, as per discussions with the department.
Random audits of storages of Pureline (a temporary hose used for temporary water supply during customer interruptions) are undertaken.	Yarra Valley Water has audited storages of Pureline and this practice will continue.
A report be created for each spot dosing records audit.	Yarra Valley Water has advised that this item has been implemented. An inventory of chlorine supply and recording of chlorine audit results were created and will be regularly maintained.
Certificates of analysis are obtained from the supplier of sodium hypochlorite.	Yarra Valley Water has advised that this action item has been completed.
Calibration of chlorine test equipment used in conjunction with spot dosing is defined.	A calibration program for chlorine and other water quality testing equipment is currently being developed by Yarra Valley Water.

The audit certificate is included in Yarra Valley Water's annual drinking water quality report for 2007–08.

## Water quality notifications

During 2007–08 the following water quality notifications were made to the department:

Date	Supply	Issue	Action(s)
June – July 2007	Brahams Road, Lyrebird Avenue, Warburton, Woori Yallock, Yarra Junction	Elevated turbidity levels	<p>Heavy rainfall around Upper Yarra Reservoir resulted in the mobilisation of naturally occurring sediments into Upper Yarra Reservoir, causing the water to become highly turbid. In mid-July 2007, the department requested Yarra Valley Water issue a <b>boil water notice</b> for the five townships downstream of the reservoir as there was a potential for disinfection to be impaired by the increased turbidity.</p> <p>Yarra Valley Water communicated to customers via regular letters, newspaper articles, radio announcements, road-side signs, and notices in shop windows.</p> <p>Water quality monitoring during the incident was increased, targeting Upper Yarra Reservoir and the downstream supplies including Silvan Reservoir, to determine the level of risk to public health, assist with operational control and to manage the customer impacts. On 14 August 2007 the boil water notice was lifted.</p> <p>An extensive mains cleaning program was undertaken. In response to the high turbidity event Melbourne Water has constructed filtration units at the entry point to each of the five localities.</p>
July – August 2007	Silvan Reservoir (supplied from O’Shannassy reservoir) – notified eastern suburbs, Emerald, Monbulk and Seville areas	Widespread customer complaint (colour)	The colour of the water in Silvan Reservoir increased due to the maximisation of water transferred from O’Shannassy Reservoir into Silvan Reservoir. Yarra Valley Water notified customers of the possibility of changes in water quality via advertisements in local newspapers in the eastern suburbs, Emerald, Monbulk and Seville areas.
July – August 2007	Ringwood, Glen Waverley, Somerton	Widespread customer complaint	During the maximisation of water supplied from O’Shannassy Reservoir into Silvan Reservoir, flows in Melbourne Water’s transfer mains from Silvan Reservoir to Preston and Waverley localities were reduced. This resulted in longer detention times in parts of the water supply system which led to the generation of taste and odour complaints in some areas supplied from Silvan Reservoir. A total of 37 complaints were received from customers in the Ringwood, Glen Waverley and Somerton areas. Localised mains cleaning and chlorination of Melbourne Water storages were undertaken to rectify the issues.
November 2007	Wallan (Pretty Sally Township tank)	Detection of <i>Escherichia coli</i> at tank	The tank was dosed with chlorine and the water mains in the area cleaned. <i>Escherichia coli</i> was not detected in follow-up samples.
December 2007	Emerald	Detection of <i>Escherichia coli</i> in drinking water	Localised cleaning of water mains and chlorination of storages in the locality were undertaken. <i>Escherichia coli</i> was not detected in follow-up samples.
January 2008	Ridge/Monbulk (Kalorama tank)	Detection of <i>Escherichia coli</i> at tank	Further investigation indicated the problem was localised to this distribution zone. The tank was isolated from the distribution system, drained, inspected and cleaned. The tank was refilled and dosed with chlorine. <i>Escherichia coli</i> was not detected in follow-up samples.
January 2008	Gembrook (Gembrook High Level tank)	Detection of <i>Escherichia coli</i> at tank	The tank was isolated from the distribution system, drained, inspected and cleaned. The tank was refilled and dosed with chlorine. <i>Escherichia coli</i> was not detected in follow-up samples collected across the locality.
January 2008	Wallan	Detection of <i>Escherichia coli</i> in drinking water	The tank was isolated from the distribution system, drained, inspected, cleaned and repaired. The tank was refilled and dosed with chlorine. <i>Escherichia coli</i> was not detected in the follow-up samples collected across the locality.

Date	Supply	Issue	Action(s)
February 2008	Warranwood	Detection of <i>Escherichia coli</i> in drinking water	Extensive flushing of the mains in the affected area was undertaken. <i>Escherichia coli</i> was not detected in the follow-up samples collected across the locality.
February 2008	Emerald	Detection of <i>Escherichia coli</i> in drinking water	The tank was isolated from the Gembrook distribution system, drained, inspected, cleaned and repaired. The tank was refilled and spot dosed with chlorine. <i>Escherichia coli</i> was not detected in the follow-up samples collected across the locality.
February 2008	Doncaster	Detection of <i>Escherichia coli</i> in drinking water	Extensive flushing of the mains in the affected area was undertaken. <i>Escherichia coli</i> was not detected in the follow-up samples collected across the locality.
March 2008	Ridge / Monbulk	Detection of <i>Escherichia coli</i> at very high levels (170 orgs/100mL) in drinking water	Further investigation indicated the problem was localised to the Kalorama Reservoir distribution zone. In response, the tank was isolated from the distribution system, drained, inspected, cleaned and minor repairs completed. The tank was refilled and spot dosed with chlorine. <i>Escherichia coli</i> was not detected in the follow-up samples collected across the locality.
June 2008	Warburton	Detection of <i>Escherichia coli</i> in drinking water	Further investigation indicated the problem was localised to the Ythan distribution zone. The tank was immediately dosed with chlorine and the water mains in the area were cleaned. <i>Escherichia coli</i> was not detected in the follow-up samples collected across the locality.

For further information on the water quality notifications listed above, please refer to Yarra Valley Water's annual drinking water quality report for 2007-08.

### Customer complaints related to water quality

A summary of the customer complaints related to water quality that were recorded by Yarra Valley Water during 2007-08 is provided in the table below.

Complaint Category	Number of water quality complaints	Number of complaints per 100 customers*
Discoloured water	2938	0.45
Taste / odour	438	0.07
Blue water	30	0.01
Air in water	186	0.03
Suspected illness	0	0
Other (including customer pipes)	154	0.02

\* based on customer connections

The total number of complaints was 0.57 / 100 customers, an increase compared with the previous year (0.52 / 100 customers).

Yarra Valley Water advised that this increase was due to low water levels in the source reservoirs. The water had less time to settle and harvesting from 'back-up' catchments generated higher levels of sediments flowing into the distribution system. Another contributing factor is the suspension of the routine mains cleaning program due to water restrictions. The widespread customer complaint incidents are listed in the incidents and events table above.

