



**Melbourne  
Water**

**Environmental Compliance**

***Quarterly Report***

**Quarter Three 2007/2008**  
**(January, February, March)**

## **Incidents, Initiatives and Issues**

### **Incidents**

None to report

### **Initiatives and Issues**

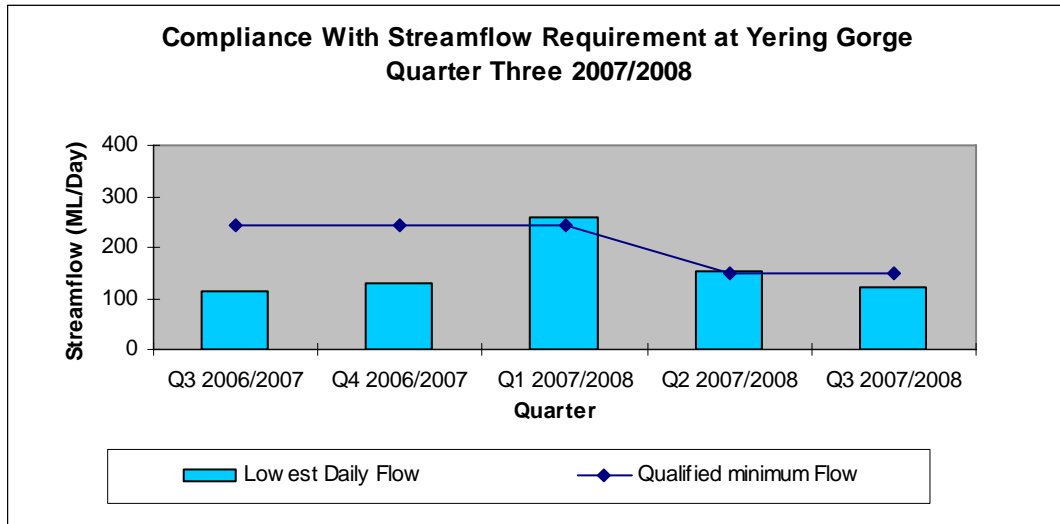
#### *Yarra River low flows monitoring*

On 23 October 2007, the Minister for Water wrote to Melbourne Water advising of the decision to reduce environmental flows in the Yarra by a further 10GL/annum. Given this requirement, Melbourne Water developed an Environmental Emergency Contingency Plan and a Yarra River Extreme Drought Monitoring Program. These programs increased the water quality monitoring requirements due to the increased risks that lower flows have on the health of the Yarra.

Melbourne Water currently reports on the environmental condition of the Yarra within “Yarra River Drought Monitoring: Weekly Update” sent to the Department of Sustainability and Environment and EPA Victoria. During the quarter there have been no instances where water quality in the Yarra River deteriorated below levels requiring action.

## Statutory Compliance

### State Environment Protection Policy Requirement for Passing Flow in the Yarra River



Melbourne Water is required to comply with the environmental flow rules specified in the Yarra River Environmental Entitlement and the subsequent qualifications described in detail within previous compliance reporting. These supersede the interim requirement specified in Schedule F7 (Waters of the Yarra Catchment) of the Waters of Victoria State environment protection policy for a flow of no less than 245 ML/day in the Yarra River downstream of the Yering Gorge diversion.

Yarra River monitoring by Melbourne Water has shown that when flows fall below 150 ML/day environmental conditions deteriorate due to low dissolved oxygen levels in the river. This has been taken into account in the Yarra River Environmental Entitlement and Melbourne Water is required to make releases from the Yarra Headworks to meet 150ML/day at Yering. During low inflows to the Upper Yarra and O'Shannassy Reservoirs releases are limited to either 50% of these inflows or 80ML/day.

During this quarter, the minimum flow at Yering Gorge was 120 ML/day even though flows were released from headworks in accordance with the above requirements and Melbourne Water met the water quality requirements of the Environmental Emergency Contingency Plan.

The Phase 1 qualification will cease after either construction of the desalination plant or the removal of Stage 3 restrictions (whichever occurs first) and the Phase 2 qualification will cease after the removal of Stage 2 restrictions.

### Yarra River Environmental Entitlement: Passing Flow Requirements

The Yarra River Environmental Entitlement and the subsequent qualifications that relate to this entitlement supersede the SEPP requirements for passing flows in the Yarra River. The new passing flow requirements at key sites along the Yarra River are noted below and are consistent with the *Temporary Qualification of Rights in the Melbourne Water Supply System – Yarra October 2007*

Melbourne Water operated in accordance with Phase 1 qualification throughout the whole of this quarter and compliance is measured against the following requirements.

Waterway	Environmental Passing Flow Requirement
Phase 1	
Armstrong Creek West	The lesser of 5ML/day and the natural flow
Armstrong Creek East	No flow requirement
McMahons Creek	The lesser of 2ML/day and the natural flow
Micks Creek	No flow requirement
Starvation Creek	The lesser of 2ML/day and the natural flow
Big Flume Creek	No flow requirement
O'Shannassy River below the reservoir	4ML/day
Cement Creek East	The lesser of 3ML/day and the natural flow
Cement Creek West	The lesser of 3ML/day and the natural flow
Cardinia Creek below the reservoir	5ML/day
Coranderrk Creek	The lesser of 3ML/day and the natural flow
Graceburn Creek	The lesser of 3ML/day and the natural flow, reduced to 1ML/day if required to maintain Healesville supply.
Watts River below the Maroondah Reservoir	1ML/day
Donnelly Creek below the weir	The lesser of 1ML/day and the natural flow
Olinda Creek below Silvan Reservoir	2ML/day
Plenty River East Branch below Toorourrong Reservoir	The lesser of 0.2ML/day and the natural flow
Yarra River at Doctors Creek Gauging Station	10ML/day
Yarra River at Millgrove Gauging Station	No flow requirement
Yarra River at Yarra Grange Gauging Station	No Flow Requirement
Yarra River at Yarra Glen Gauging Station	If at least one of the following trigger events did not occur during the previous calendar years and flows greater than the triggers below are observed at Yarra Glen, harvest only that which is in excess of: (a) 1,500ML/day in April and May; and (b) 2,000ML/day from June to September over one 7 day period when each of the above flows occurs for the first time in this calendar year.
Yarra River at Yering Pumps Gauging Station	(a) Cease harvesting water at Yering Gorge pump station when the flow at Yering pumps gauging station is equal to or less than 200ML/day. (b) Subject to paragraph (c), meet a minimum environmental flow of 150ML/day (c) In order to meet the flow in paragraph (b) and subject to paragraph (d), release a total flow from the Yarra headworks system of up to 50% of the sum of the natural inflows to Upper Yarra and O'Shannassy reservoirs with a

	<p>maximum of 80ML/day</p> <p>(d) The Environment Minister may instruct the Storage Operator to withhold part of the release required under paragraph (c) and release it later within that same calendar month in a pattern and at a rate determined by the Environment Minister.</p> <p>(e) All water accumulated through the application of paragraph (d) must be released to the river before the beginning of the next calendar month.</p>
Yarra River at Chandler Highway Gauging Station	If the flow at Chandler Highway Gauging Station is less than 150ML/day, cease harvesting water at Yering Gorge pump station.

## Sewerage System Summary of Statutory Compliance by Facility

### Summary of Compliance by Facility Quarter Three 2007/2008

Facility	Compliance * of Samples Q3 (%)	Non-Sample Compliance**	Sewage Spills***	Odour Complaints
Eastern Treatment Plant			0	4
Western Treatment Plant			0	0
Wastewater Transfer	N/A	N/A	0	6
Total	N/A	N/A	0	10
	<b>Compliance achieved for all parameters</b>			
	<b>Compliance not achieved for one or more parameters.</b>			

\* Compliance of samples details the compliance status for maximum/minimum/range or annual discharge parameters as indicated by the quarter's results.

\*\*Non sample compliance covers licence breaches for issues other than discharge parameter limits  
Details on compliance breaches appear in following sections.

\*\*\*Sewage spills include all spill types (operational failures, compliant and non-compliant less than 1:5 rainfall event spills and greater than 1:5 rainfall event spills)

## Sewerage System Statutory Compliance Detail

### Compliance of Samples – 3rd Quarter 2007/2008

The following table shows compliance of Melbourne Water's wastewater treatment plants with parameters in EPA Victoria licences where limits are expressed as a maximum, minimum or a range.

Treatment Plant Compliance with EPA Victoria Licences by Parameter \*  
Quarter Three 2007/2008

SITE	Amm	Surf	Metals	PH	D.O.	Flow	TRC	Other#
	Max	Max	Max	Range	Min.	Max	Max	
WTP all outlets								
ETP								
Air Emissions								

	<b>Compliance achieved</b>
	<b>Compliance not achieved** - See following sections for details</b>
	<b>Not applicable</b>

\* See Appendix One for a guide to the above parameters and Appendix Five for the location map of Western Treatment Plant Outlets.

# Parameters that are less significant and rarely fail to meet the required standard.

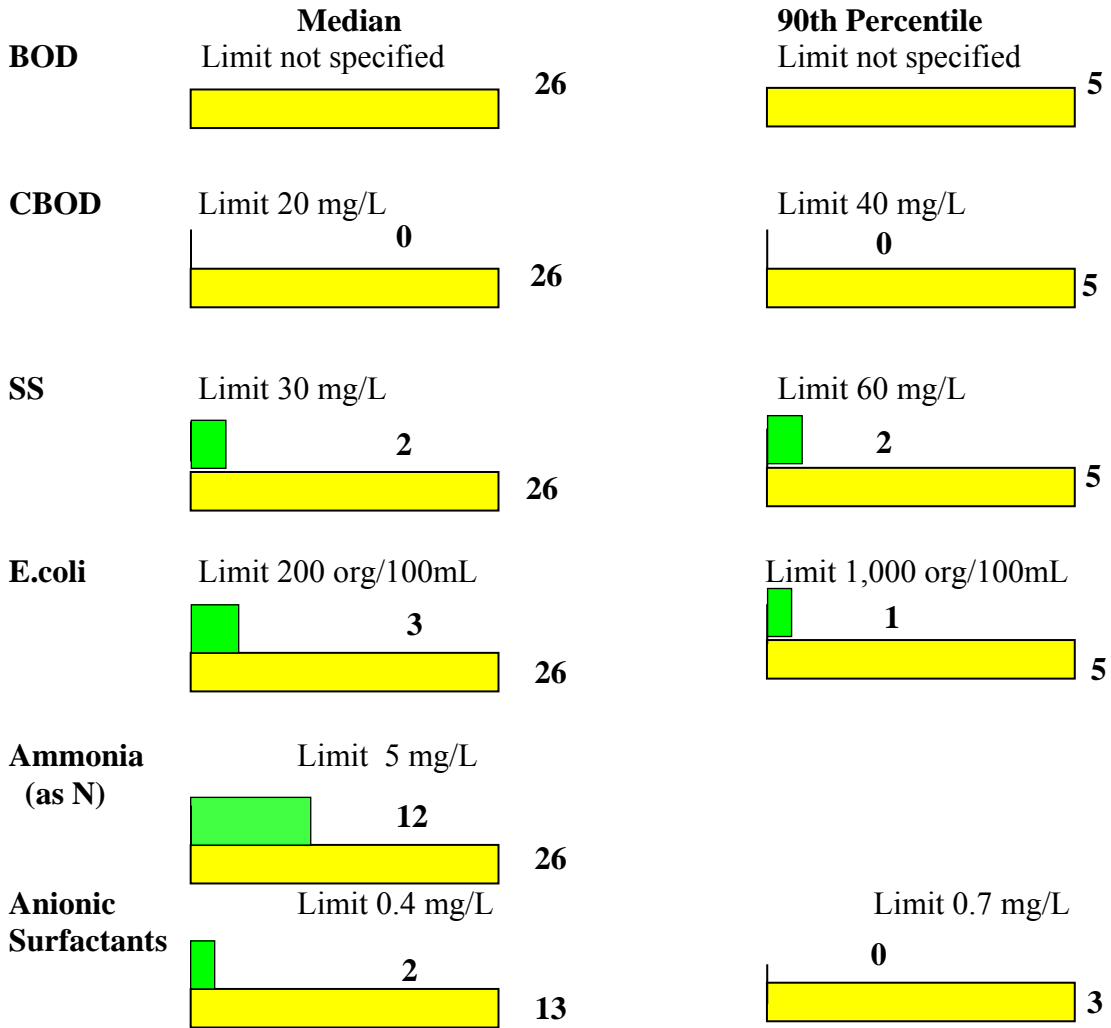
\*\* EPA Victoria is given an explanation for each non-compliance

**Eastern Treatment Plant**

*Annual Parameters*

The following details Eastern Treatment Plant’s performance for critical parameters. Performance with respect to other parameters is reported here only if the results exceed licence limits, in which case explanatory information is contained in the following section.

**NOTE:** The plant has been granted a waiver for BOD compliance by EPA Victoria on the understanding that CBOD is also monitored and CBOD limits are complied with.



	Number of sample results to date greater than the Licence Limit – exceeds the total allowance for the year (licence breach).
	Number of sample results to date greater than the Licence Limit – exceeds the allowance for the year to date.
	Number of sample results to date greater than the Licence Limit – within the allowance for the year to date.
	Number of sample results during the year allowed to exceed the Licence Limit.

### ***General Licence Requirements***

No issues

### ***Groundwater Monitoring***

The results of the November 2007 monitoring program are as follows:

- Groundwater levels had risen slightly across most sampling points at ETP in response to increased precipitation in November
- The inferred groundwater flow is directed south-west towards the Patterson Lakes area. Surface water elevations in the Patterson River and the Eumemmerring Creek remained above the groundwater elevations in the bores located in the vicinity supporting the conclusion that groundwater does not immediately discharge into surface water bodies
- Variations of field-recorded parameters were not indicative of major changes in groundwater quality
- Laboratory results suggest that groundwater chemistry remained relatively unchanged in comparison with the previous results
- The reported exceedances of the adopted groundwater quality objectives for maintenance of the marine aquatic ecosystems, stock watering, buildings and structures indicated that groundwater from the site may be potentially detrimental to the receiving aquatic environment of Patterson Lakes and is unsuitable for dairy cattle watering.

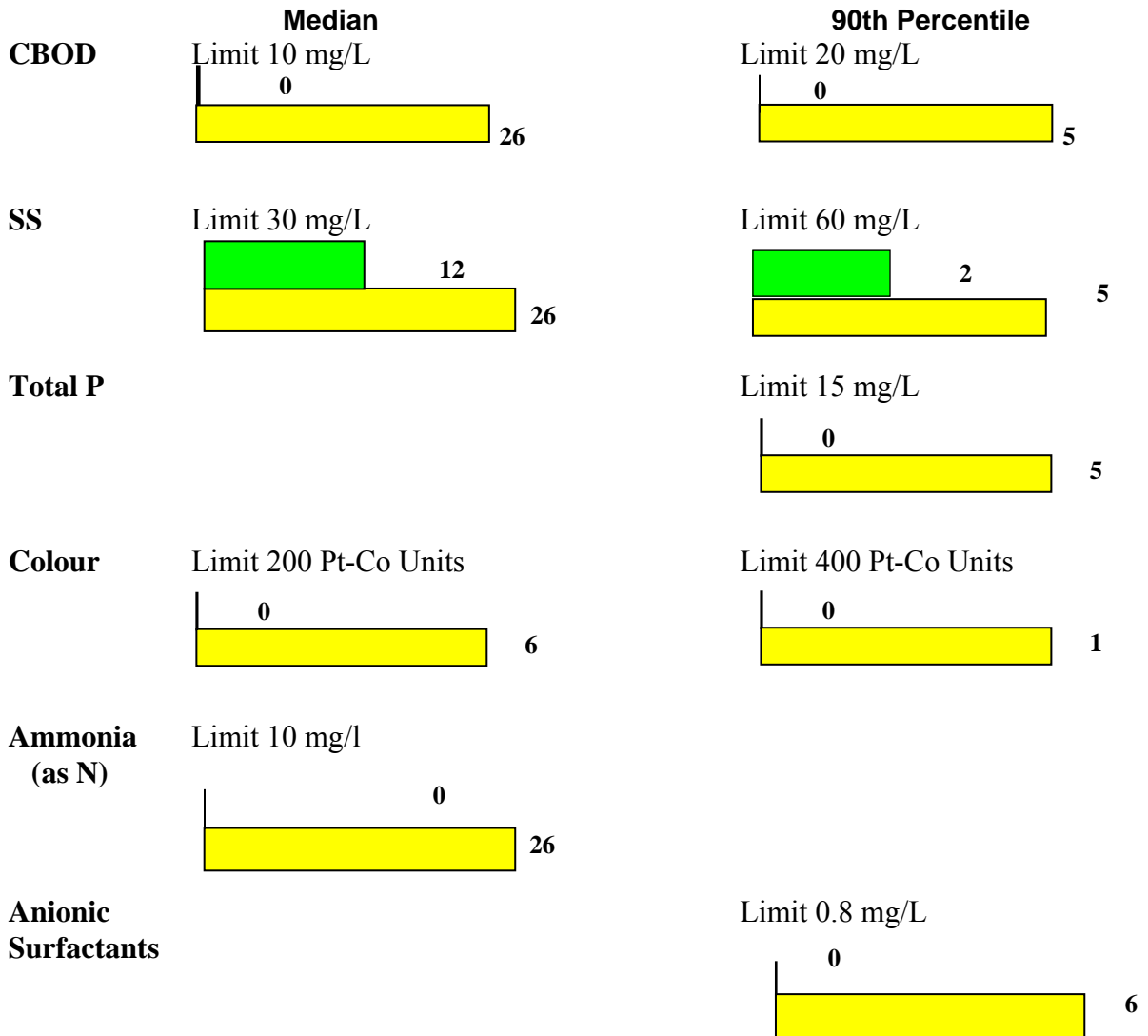
### ***Details of Licence Non-Compliance/Parameter Exceedances***

None to report.

**Western Treatment Plant**

The following details Western Treatment Plant’s performance for critical parameters. Performance with respect to other parameters is reported here only if the results exceed licence limits.

*Annual Parameters - flow weighted average of all four licensed outlets*



	Number of sample results to date greater than the Licence Limit – exceeds the total allowance for the year (licence breach).
	Number of sample results to date greater than the Licence Limit – exceeds the allowance for the year to date.
	Number of sample results to date greater than the Licence Limit – within the allowance for the year to date.
	Number of sample results during the year allowed to exceed the Licence Limit.

***General Licence Requirements***

No issues

***Groundwater Monitoring***

There is a groundwater monitoring program that uses approximately 90 bores located across the treatment plant. The program encompasses quarterly groundwater level monitoring and annual quality monitoring. Monitoring completed in December 2007 found that the two aquifers under the plant generally flow south and south east toward Port Phillip Bay. The parameters to be tested for the annual quality monitoring component are being reviewed and will be incorporated into the quality monitoring programmed for June 2008.

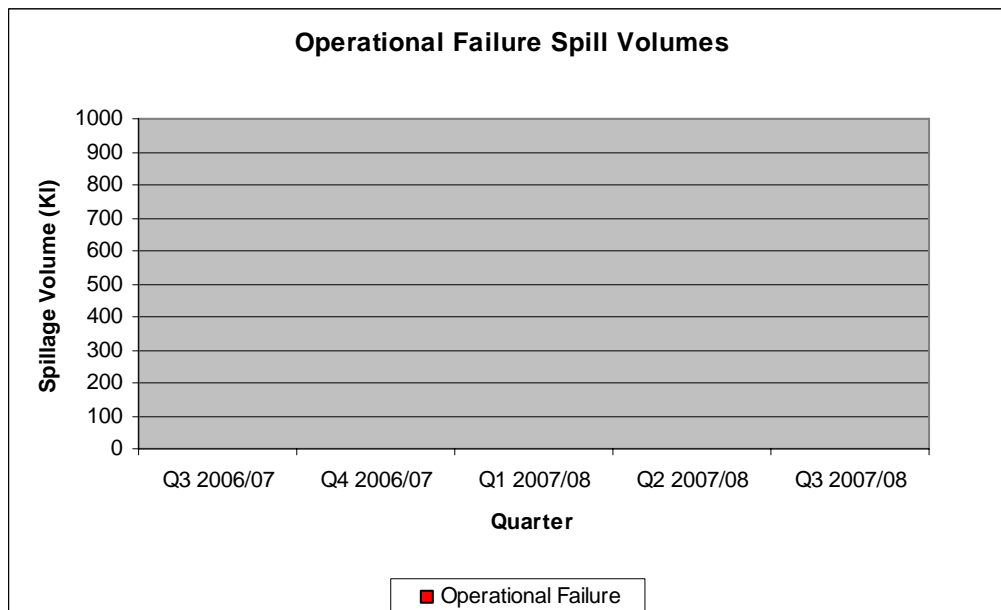
***Details of Licence Non-Compliance/Parameter Exceedances***

There were a number of high results for suspended solids at the 145W and Lake Borrie outlets during the quarter. This has contributed to an increased number of results that exceed the suspended solids median and 90<sup>th</sup> percentile limit values. These have not breached the licence requirement as we are permitted up to 26 and five exceedances per annum respectively. An investigation into the contributing circumstances behind the high results will be held to minimise the occurrence of higher numbers and to manage suspended solids compliance by balancing discharge from these outlets with recycled water demands.

## Sewage Spills Summary

<b>Number of Spills</b>	<b>Q3 2006/07</b>	<b>Q4 2006/07</b>	<b>Q1 2007/08</b>	<b>Q2 2007/08</b>	<b>Q3 2007/08</b>
Number of Spills	0	0	0	5	0
Operational failure	0	0	0	0	0
<1:5 compliant	0	0	0	5	0
<1:5 non-compliant	0	0	0	0	0
>1:5	0	0	0	0	0
<b>Significance*</b>	<b>Q3 2006/07</b>	<b>Q4 2006/07</b>	<b>Q1 2007/08</b>	<b>Q2 2007/08</b>	<b>Q3 2007/08</b>
Minor (Rating 1 - 3)	0	0	0	4	0
Significant (Rating 4 – 5)	0	0	0	1	0
Not Rated	0	0	0	0	0
EPA Victoria Reporting Protocol Met	Yes	Yes	Yes	Yes	Yes

\*Melbourne Water reports spills according to the Melbourne Water-EPA Victoria spill reporting protocol that is contained in Appendix Three. The rating assigned to a spill is determined by applying the potential impact rating to the incident (refer to Appendix Two). If a spill is contained on site with no damage to the environment it will be reported in this report but not included in spills publicly reported.



### *Spills Due to Operational Failures*

There were no spills due to operational failure during the quarter.

The above graph indicates the volume of sewage spilt due to equipment breakdown or human error.

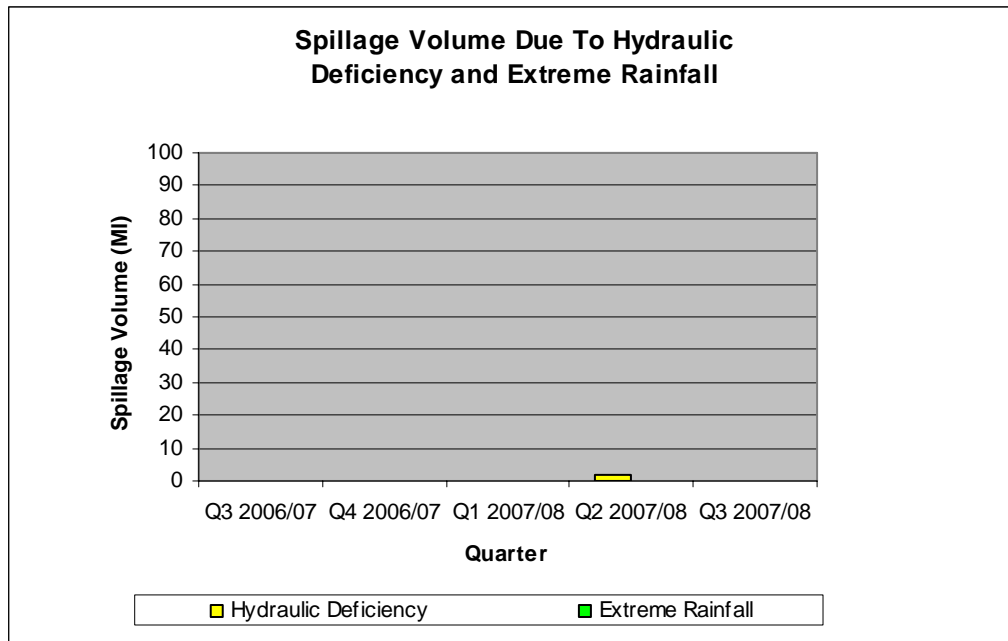
**Eastern Treatment Plant**

There were no spills at Eastern Treatment Plant during the quarter.

**Western Treatment Plant**

There were no spills at Western Treatment Plant during the quarter.

**Spills Due to Rainfall Events Greater than 1:5 Year Return Frequency (Extreme Rainfall) and Hydraulic Deficiency**

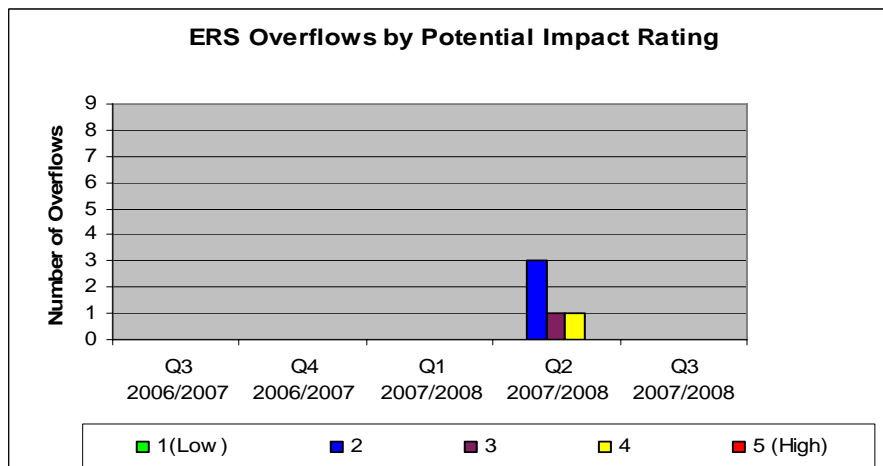


**Hydraulic Deficiency** - Spills due to insufficient pipe/pump capacity

**Extreme Rainfall** - Spills due to rainfall events greater than 1: 5 year return frequency

There were no spills due to hydraulic deficiency or extreme rainfall (greater than 1 in 5 event)

**ERS Overflows**

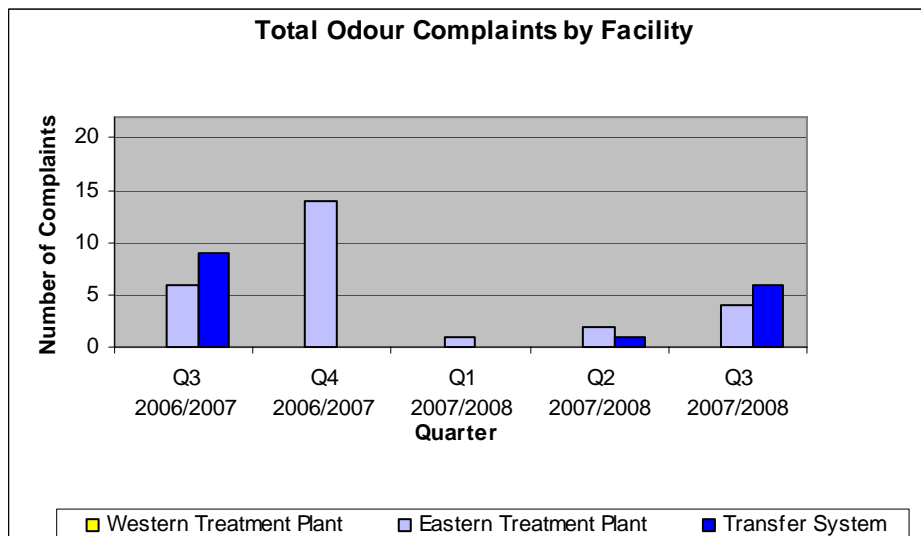


## Odour Complaints

EPA Victoria regulates odour and this requires Melbourne Water to have no offensive odour attributable to its activities. New facilities have to be designed to meet this requirement and existing facilities with odour have to establish improvement programs to achieve this in agreement with EPA Victoria. Melbourne Water has an odour management strategy to ensure that treatment plant and transfer system odour performance meets regulatory requirements. This strategy has been developed with EPA Victoria agreement. This includes targeted actions for Eastern and Western Treatment Plants and the Transfer System.

Odour performance from facilities is measured through odour complaints attributable to the facility. EPA Victoria will consider an odour complaint a discharge licence breach if it is attributable to Melbourne Water and if either the relevant improvement program is not being implemented or the program is considered unsatisfactory. Odour complaints from facilities without a discharge licence could result in a requirement to develop and implement a neighbourhood improvement plan. Should odour become a significant local issue EPA Victoria could strengthen this approach and require a review of improvement strategies or issue sanctions such as penalty infringement notices.

None of the odour complaints described below are considered to be licence breaches by EPA Victoria at this time.



### *Eastern Treatment Plant*

There were four odour complaints received during the quarter. Details are as follows:

On 6 March 2008 an odour complaint was received from a Patterson Lakes resident for an odour at 9:00 pm on 5 March 2008. The complaint was received some time after the odour was detected so a site visit was not conducted. There were no known process and operational issues at the time of the complaint.

A wind track analysis showed wind from a East North Easterly direction passing the edge of the southern sludge drying pans and the Gathercoles meat works and both sources may have contributed to the odour detected. Sludge turning and filling works in the Southern sludge drying pans may have contributed to the odour as a number of the pans were turned on 5 March 2008.

On 12 March 2008, an odour complaint was received from a Patterson Lakes resident at 22:50. Melbourne Water visited the site at 23:00 and was unable to detect an odour. There were no known process and operational issues at the time of the complaint. A wind track analysis showed the wind was still to calm averaging 2 knots from a North Easterly direction. The wind track passed close to the area where the current foul air system discharge stacks are located (these will be addressed in Stage 1 of the odour control strategy) and the sludge drying pans where recent sludge harvesting works had been undertaken.

On 19 March 2008, an odour complaint was received from a Patterson Lakes Resident at 21:45. A visit to the site was declined by the complainant and there were no known process and operational issues at the time of the complaint.

A wind track analysis showed wind passed across the sludge drying pans south of Thompsons Road and also crossed the Gathercoles meat works both of which may have contributed to the odour. Sludge turning and filling works in the drying pans may have contributed to the odour. These assessments indicated that ETP was a possible contributor to the odour detected.

On 20 March 2008, an odour complaint was received from the CFA training facility on Thompson Road. The complainant reported that odour had been detectable for the past couple of days. The complainant did not specify times the odour was detected but that it was noticeable for most of the day. A site visit was unable to be conducted as the information was received after the event.

During the week 17-20 March 2008 sludge harvesting works were conducted in the Northern and Southern sludge drying pans. Wind track analyses showed that the wind crossed over known odour sources of the plant including the sludge harvesting works. ETP is likely to have contributed to the odours detected.

The sludge drying pan refurbishment program will provide flexibility in sludge harvesting to minimize the potential for odour from this operation.

### ***Western Treatment Plant***

There were no odour complaints received during the quarter.

### ***Transfer System***

There were six odour complaints received during the quarter. Details are as follows:

On 31 January 2008, a complaint was received from a member of the public regarding an odour in the vicinity of Manhole 38 on the North Yarra Main Sewer, North Melbourne. Melbourne Water contractor Thiess attended the site and found that the seal between the vent tube and the vent base had failed. The seal was replaced and the odour eliminated.

On 3 January 2008, a complaint was received from a member of the public regarding an odour in the vicinity of Station Street, Carlton. An investigation found that the odour filter that had been installed on the vent at North Yarra Main manhole 50 had been removed to enable some civil works to be undertaken in the sewer. The filter had not been reinstalled. Melbourne Water contractor Thiess was engaged to reinstall the filter and eliminate the odour.

On 22 February 2008, a complaint was received from a member of the public via EPA Victoria regarding an odour in the vicinity of Brooklyn Pumping Station. An analysis of the wind direction and odour logging in the Brooklyn Pumping Station vent stack confirmed that Brooklyn Pumping Station was the most likely source of the odour. Monitoring of odour from the Pumping Station will be used to develop an appropriate response. EPA Victoria are being kept informed on this activity.

On 25 March 2008, a complaint was received from a member of the public via the EPA regarding an odour in the vicinity of the intersection of Heidelberg Rd and Hoddle Street. Melbourne Water contractor Thiess visited the site and determined the odour was coming from a manhole with a corroded sealing plate. A new manhole cover was installed and the odour eliminated.

On 4 March 2008, a complaint was received from a member of the public via Yarra Valley Water regarding an odour in Oak Park. Melbourne Water contractor Thiess visited the site and determined the odour was coming from a manhole with a cracked cover. The crack was temporarily sealed and a new manhole cover subsequently installed and the odour eliminated.

On 8 March 2008, a complaint was received from a member of the public via Yarra Valley Water regarding an odour at the rear of their property in Oak Park. Melbourne Water contractor Thiess visited the site and determined the odour was coming from a manhole cover that had not been seated correctly. The cover was seated correctly the next day and the odour eliminated.

## Corporate Compliance

### Melbourne Water Passing Flow Compliance in Rivers and Streams

The qualifications on environmental entitlements for the Thomson and Yarra Rivers remains in place until Level 2 restrictions are lifted. The table below outlines compliance with passing flow requirements at various sites. Some of these passing flows may vary due to the Yarra bulk entitlement conversion process.

#### Melbourne Water Passing Flow Compliance Quarter Three 2007/2008

Site	Passing Flow (ML/d)	Actual Min. Flow (ML/d)	Compliance	Comments Phase 1 Requirements
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#### RESERVOIRS:

Cardinia Res. to Cardinia Ck	5	5	√	The lesser of 5 ML/d and the Natural flow
Maroondah Res. to Watts R.	1	1	√	Operating rule - 1 ML/d released via ungauged outlet pipe
O'Shannassy Res. To O'Shannassy R.	4	4	√	Operating rule - 4 ML/d released via ungauged outlet pipe
Silvan Res. to Olinda Ck	2	2	√	Operating rule - 2 ML/d released via "V" notch, outlet pond.
Tarago Res to Tarago R At Scalp Ck	5	15	√	MWC agreement with former SR&WSC
Thomson Res. To Thomson R: • Below Dam • At Narrows • At Coopers Ck	75 120 155	110 112* 171	√ √ √	Melbourne Water Bulk Entitlement provision for Thomson Reservoir.
Toorourrong Res. to Plenty R.	0.2	0.2	√	MWC operating rule - 0.2 ML/d released for stock
Upper Yarra Res. to Yarra R: • Upper Yarra Dam • At Yering Gorge Pump Stn • At Chandler Highway	10 200/150 150	10 120** 156	√ √ √	- At Doctors Ck. Gauging Station - Cease harvesting when flow ≤ 200ML/d./ or minimum Env .Flow =150 ML/d when not pumping. - When flow less than 150 MLD, cease harvesting at Yering Gorge.

#### WEIRS†:

Armstrong Ck Weir	5	5	√	MWC operating rule
Coranderrk Ck Weir	3	3	√	MWC operating rule – via ungauged outlet pipe
Donnelly Ck Weir	1	1	√	MWC operating rule– via ungauged outlet pipe
Graceburn Ck Weir	3	3	√	The lesser of 3 ML/day and the natural flow reduced to 1 ML/d if required to maintain Healesville supply.
McMahons Ck Weir	2	2	√	MWC operating rule
Silver Ck Weir	1	0***	√	Bulk Entitlement provision - 1 ML/d is released when streamflow is 4 ML/d or greater
Starvation Ck Weir	2	2	√	MWC operating rule
Wallaby Ck Weir	1	0****	√	Bulk Entitlement provision - 1 ML/d is released when streamflow is 2 ML/d or greater

## Clarification on variations in Passing Flow Compliance Table

\* Seven day rolling average for Narrows flows were above required flows.

\*\* Daily Average flow, supplemented by releases from Maroondah and Upper Yarra reservoirs. Released 50% of total streamflow into Maroondah and Upper Yarra reservoirs during low periods (<150 ML/d).

\*\*\* Silver Creek Weir stream flow was less than 4 ML/d during this period. (Bulk Entitlement provision - 1 ML/d is released when stream flow is 4ML/d or greater).

\*\*\*\* Wallaby Creek Weir compensation dictated by stream flow which is low due to drought conditions.

## Maribyrnong River Bulk Entitlement

Melbourne Water is required to manage its share of releases from Rosslynne Reservoir and water extractions from the Maribyrnong River to ensure that, as a result of diversion activities, passing flows in the river at Keilor do not fall below requirements specified in the Maribyrnong Bulk Entitlement Orders - 5 ML/day or the natural flow, whichever is the lesser. Natural flow is based on flow at Deep Creek at the Bulla gauging station.

Days when flow at Keilor was below that required		0
	<b>Compliance achieved</b>	
	<b>Compliance non achieved</b>	

## Trade Waste Agreements

### Changes made to the Reporting of Non-Compliant Discharges

In the past Retail Water Companies only reported the number of non-compliant discharges which was then used for Melbourne Water reporting purposes. This did not distinguish between low and high risk discharges. Changes have now been made to Retail Water Company reporting methods which report the level of risk in relation to the non-compliances.

Under the new reporting arrangements Retail Water Companies provide information on non-compliant discharge occurrences to Melbourne Water every month, including a summary on the risk to Melbourne Water. This risk assessment includes an evaluation of the impact that each non-compliant discharge is likely to have on occupational health & safety, assets, treatment plant processes, environment, recycled water, biosolids quality and biogas.

### Trade Waste Reporting Results for Quarter 3 2007/2008 Financial Year

Melbourne Water's key performance indicator for trade waste is as follows:

- Zero high risk non-compliant trade waste discharges to Melbourne Water's sewer system.

The following table shows the number of non-compliant discharges for each Retail Water Company for each risk level.

	CWW	YVW	SEW
<b>January</b>			
Insignificant	51	18	24
Moderate	0	0	0
High	0	0	0
<b>February</b>			
Insignificant	46	14	22
Moderate	0	0	0
High	0	0	0
<b>March</b>			
Insignificant	51	15	16
Moderate	0	0	0
High	0	0	0
<b>Total</b>	<b>148</b>	<b>47</b>	<b>62</b>

**Table 1 - Risk level of non-compliant discharges as reported by RWC's**

The table above includes non-compliant discharges that were both resolved and unresolved during each month.

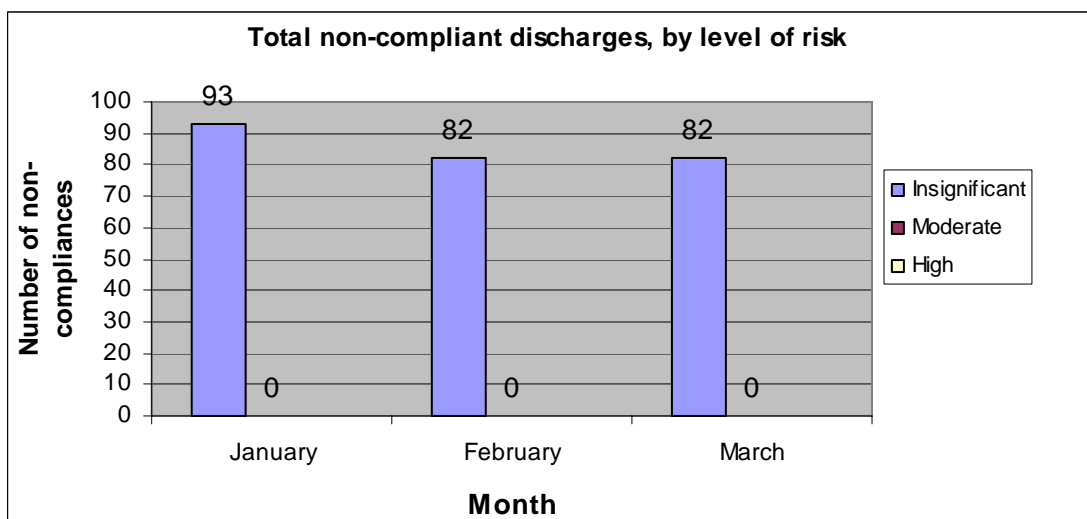


Figure 1 - Total non-compliant discharges by risk level

## Discussion of Trade Waste Reporting Results for Quarter 3 2007/2008 Financial Year

### High Risk:

*There were zero high risk non-compliances in Q3 2007/ 2008.*

High risk non-compliances could strongly affect the occupational health & safety of sewer workers, inhibit the treatment plant process affecting product compliance, significantly impact on the receiving environment, breach Melbourne Water's operating licence or ability to supply customers with recycled water, biogas or biosolids. "High" risk non compliances would require both Retail Water Company and Melbourne Water incident management response and debrief procedures to be followed.

### Moderate Risk:

*There were zero moderate risk non-compliances in Q3 2007/ 2008.*

Moderate risk non-compliances could affect the occupational health & safety of sewer workers, inhibit the treatment plant process without affecting product compliance, impact on the receiving environment which can be easily remediated, impact on the licence compliance for a short period of time and/or affect Melbourne Water's ability to supply customers with recycled water, biogas and biosolids. The likelihood of impact of "Moderate" risk non-compliances is low due to existing Melbourne Water and Retail Water Company control measures in place. "Moderate" risk non compliances would require a follow-up report of the incident including actions taken to resolve the issue, increased monitoring and contingencies in place to prevent reoccurrence.

**Insignificant Risk:**

*There were 93 insignificant risk non-compliances in January 2008,  
There were 82 insignificant risk non-compliances in February 2008,  
There were 82 insignificant risk non-compliances in March 2008.*

Non-compliant discharges ranked as “Insignificant” present very little or no risk to Melbourne Water. They can be easily managed through procedures and control measures in place to ensure customers take action to rectify issues and return to compliance.

The risk assessment framework that has been developed aims to ensure that the appropriate management actions for each risk level are appropriately undertaken and consistently applied.

## Water Recycling at Western and Eastern Treatment Plants

Waste minimisation, through effluent and biosolids reuse and by other means, is a licence objective for both Eastern Treatment Plant and Western Treatment Plant. Melbourne Water has established a target to recycle on average 20 % of effluent by 2010.

### *Eastern Treatment Plant*

During the quarter approximately 761 ML of recycled water was supplied to customers along the South East Outfall and 2 641 ML was supplied to the Eastern Irrigation Scheme. In addition to this approximately 3 477 ML of water was used onsite at the Eastern Treatment Plant.

The Eastern Irrigation Scheme provides “Class A” recycled water from their plant off Thompson Road to the Sandhurst Club, Wedge Rd Reserve and other customers in the Cranbourne and Five Ways districts.

### *Western Treatment Plant*

During the quarter approximately 4 386 ML of recycled water was supplied to Southern Rural Water for the Werribee Irrigation District, and 110 ML was supplied to the Werribee Tourist Precinct, incorporating both the Werribee Park Golf Club and the State Equestrian Centre. In addition to this, 15 ML was supplied to Mc Killop College, 42 ML to the Werribee Technical Precinct and 87 ML to the retail water companies as part of the drought relief initiative.

In addition to this, approximately 10 796 ML of recycled water was used onsite at the Western Treatment Plant.

The chlorination and UV disinfection plant is supplying Class A recycled water to both the Werribee Tourist Precinct customers and the Werribee Irrigation District.

### *Influent Total Dissolved Solid Limit*

To ensure that flows into Western Treatment Plant do not have total dissolved solids levels that would compromise effluent reuse opportunities, the revised discharge licence from EPA Victoria has a future influent limit of median total dissolved solids to not exceed 1000 mg/L by 2009. This section will report on compliance with the current compliance limit of 1250 mg/L.

Influent limit of 1250 mg/L total dissolved solids	
Compliance	Not Achieved
	Achieved

## **Biosolids Reuse at Western and Eastern Treatment Plant**

Melbourne Water had developed a biosolids management strategy that included targets to beneficially use 100% of annual production at Eastern Treatment Plant by 2005 and Western Treatment Plant by 2010. This was adjusted to 100 % at WTP by 2011/12 and 0 % at ETP as a result of the 2006 Biosolids Beneficial Use Strategy and the draft Water Plan 2.

EPA Victoria approved the Eastern and Western Treatment Plant biosolids management plans in January 2004. These plans describe biosolids inventories, address quality/quantity issues and beneficial use options and set relevant Melbourne Water operational targets. Discussions between Melbourne Water and EPA Victoria about the changed targets have occurred as part of the Water Plan process.

The Board noted the 2006 Biosolids Beneficial Use Strategy in July 2006. The Strategy outlined actions to achieve the use of clay-rich biosolids stored onsite at the Eastern Treatment Plant as structural fill in roads in the short to medium term. The strategy also outlined plans for further investigations into the potential use of Eastern Treatment Plant biosolids for land application in the longer term, subject to clarification of potential risks and liabilities. In addition, a research program for identifying future innovative options for beneficial use of biosolids from both the Eastern and Western Treatment Plants will be implemented. At Western Treatment Plant, the strategy recommends developing a business case for the potential use of biosolids as a fuel at the Blue Circle Southern Cement facility at Geelong.

### ***Eastern Treatment Plant***

During the quarter there were no biosolids removed from the Eastern Treatment Plant for beneficial use.

Due to the high clay content of the Eastern Treatment Plant stockpiled biosolids, Melbourne Water is pursuing the use of biosolids as road embankment fill. Melbourne Water has received confirmation from EPA Victoria that the project is consistent with regulatory obligations and EPA Victoria is working to develop guidelines for using biosolids in this application. Developing these guidelines would allow biosolids structural fill projects to proceed under an approved Environment Improvement Plan.

### ***Western Treatment Plant***

During the quarter no biosolids were removed from the Western Treatment Plant for beneficial use.

Due to the high contaminant levels and potentially useful calorific value of the Western Treatment Plant biosolids, Melbourne Water completed a feasibility study into energy recovery. The study investigated both onsite and offsite energy recovery alternatives and found that use of biosolids as a fuel at Blue Circle Southern Cement was the preferred option.

### ***Status Report - Meeting SEPP Targets for Melbourne's Waterways***

The following information describes the physico-chemical and bacteriological condition of Melbourne's waterways during the reporting period. Objectives set out in the three relevant State environment protection policies (SEPPs) are the long-term targets for water quality. There is no specific statutory obligation on Melbourne Water to meet these targets.

The Waters of Victoria SEPP has a provision for the development of interim waterway water quality targets if there is little chance of attaining the desired quality within the ten-year time frame of the SEPP. Melbourne Water will be developing interim targets where relevant as part of the Regional River Health Strategy. Melbourne Water has adopted a long-term aim to achieve objectives for water quality in accordance with State environmental protection policies and targets set out in the Regional River Health Strategy and Waterways Water Quality Strategy.

This quarterly report uses a rolling twelve months of waterway water quality data and uses the relevant statistical measure from the particular SEPP schedule and segment a waterway falls within. The map shows SEPP segments and where monitoring points are located. The performance tables show performance against relevant SEPP objectives with red indicating a failure to meet SEPP and green indicating compliance with SEPP. The number in each cell is the result for the previous 12 months.

SEPP compliance calculations require eleven samples for most parameters. For a small number of sites in this report, a reduced number of data were available due to drought or access conditions. New monitoring sites are being added in the extended area and as data becomes available this will be included in the tables.

Waterway monitoring data from the last twelve months showed that waterways within Greater Melbourne performed well for pH, with most catchments complying with their SEPP objectives. Catchments varied from zero to full compliance for E.coli and turbidity. However, Waters of the Yarra Catchment generally performed better in these parameters than other SEPP segments. All waterways performed poorly for dissolved oxygen and nutrient levels with no catchments complying with SEPP objectives for nitrogen and very few complying for phosphorus or dissolved oxygen.

## Waterway Water Quality

### Quarter Three, 2007/2008

The table below shows the water quality compliance of Greater Melbourne's waterways during the reporting period, sorted by catchment. Results indicate the percentage of samples taken in each catchment that comply with State water quality guidelines.



### Definitions

<b>DO</b>	Dissolved oxygen
<b>EC</b>	Electrical conductivity
<b>Turb</b>	Turbidity
<b>T-P</b>	total phosphorus
<b>T-N</b>	total nitrogen
<b>min</b>	Minimum
<b>max</b>	maximum
<b>...%tile</b>	..th percentile
<b>geo</b>	geometric mean
<b>*</b>	This SEPP requires 5 samples at regular intervals within 30 days, however these figures have been calculated using 12 monthly readings
<b>**</b>	This SEPP requires a 42 day geometric mean, however these figures have been calculated using 12 monthly readings.
<b>%sat</b>	percentage saturation
<b>uS/cm</b>	micro Siemens per centimetre
<b>NTU</b>	nephelometric turbidity units
<b>mg/l</b>	milligrams per litre
<b>org/100ml</b>	organisms per 100 millilitres
<b>NA</b>	none applicable

<b>Waters of the Yarra Catchment</b>	<b>DO% Min</b>	<b>pH Min</b>	<b>pH Max</b>	<b>E Coli Geomean</b>	<b>Turb 50%</b>	<b>TP Max</b>	<b>TN Max</b>
	% sat	ph units	ph units	org/ 100ml	NTU	mg/l	mg/l

### Rural Eastern Waters

	80	6	8.5	200	15	0.05	0.6
Yarra River at McKenzie-King Drive, Millgrove	47	6.6	7.9	169.2	4	0.019	0.837
Yarra River at Don Road, Launching Place (EPA 2916)	44	5.8	8.2	166.1	7	0.027	1.057
Yarra River at Maroondah Hwy, Healesville (EPA 2904)	44.4	6.4	8.8	201.8	11	0.036	1.296
Yarra River at Spadonis Reserve, Coldstream	46.9	7.1	7.9	187.5	11.5	0.06	1.487
Little Yarra River at Corduroy Road, Yarra Junction	51	5.8	8.1	286.9	14.5	0.036	1.857
Woori Yallock Creek at Warburton Highway, Woori Yallock	40	5.9	7.4	153.4	17	0.35	2.02
Woori Yallock Creek at Macclesfield-Woori Yallock Road, Yellingbo	46	5.9	7.3	125.2	17.5	0.038	2.508
Cockatoo Creek at Tschampions Road, Macclesfield	46	5.9	8.2	43.0	21.5	0.051	2.099
Wandin Yallock Creek at Killara Road, Gruyere	31	6.9	7.5	74.8	9.5	0.069	2.747
Watts River at Healesville-Kinglake Road, Healesville	19.7	6.2	8.2	270.4	7	2.2	1.578
Steels Creek at Yarra Glen-Healesville Road, Yarra Glen	25.7	6.2	7.8	33.6	36	0.073	2.14
Stringybark Creek at Melba Highway, Yering	32.6	6.6	8.1	88.7	11	0.28	1.777
Watsons Creek at Henley Road, Kangaroo Road	30	7.1	8.6	24.9	5	0.035	1.523
Arthurs Creek at Hurstbridge-Arthurs Creek Road, Hurstbridge	14	6.6	8.3	53.5	25	0.17	2.433
Diamond Creek at Strathewan Road, Cottlesbridge	14	6.6	8.3	32.4	13	0.17	3.714

### Rural Western Waters

	60	6	8.5	200	25	0.05	0.6
Plenty River at Kurarak Road, South Morang	27	6.8	7.9	40.3	11	0.13	1.866
Merri Creek at Summerhill Road, Craigieburn	22	6.9	8.3	32.6	6	0.14	2.011

### Upper Estuary

	60	6.5	8.5	200	30	N/A	N/A
Yarra River at Princes Bridge, Melbourne	50	6.9	8.4	425.6	8		

### Urban Waters

	60	6	8.5	200	25	0.1	1
Yarra River at Kangaroo Ground-Warrandyte Road, Warrandyte	57.2	7	8.6	62.6	11.5	0.059	2.405
Yarra River at Chandler Hwy, Kew (Replaces MY01)	31	6.7	8.9	246.5	25	0.11	1.833
Olinda Creek at MacIntyre Lane, Coldstream	31	7.1	8	302.6	13	0.23	4.518
Brushy Creek at Lower Homestead Road, Wonga Park	34.9	6.9	7.7	499.6	22	0.38	9.64
Jumping Creek at Jumping Creek Road, Wonga Park	31	6.8	8.1	135.8	8.5	0.24	1.131
Andersons Creek at Everard Drive, Warrandyte	30	7	7.9	282.0	11	0.31	4.771
Mullum Mullum Creek at Deep Creek Reserve, Warrandyte	28.5	7	8.2	513.4	29	0.57	4.49
Ruffey Creek at Parker Street, Templestowe	37	7.2	8.6	582.5	10.5	0.2	2.631
Koonung Creek at Bulleen Road, Bulleen	28	7.1	8.3	568.5	11	0.33	3.29
Gardiners Creek at Glenferrie Road, Hawthorn	60	6.9	8.5	977.0	9.5	0.12	2.083
Diamond Creek at Main Road, Eltham	28	7	8.3	418.5	28.5	0.26	2.518
Plenty River at Henty Road, Lower Plenty	26	7	8.8	266.3	20.5	0.16	2.214
Darebin Creek at Clark Road, Alphington	35	6.9	8.6	727.1	10	0.24	1.989
Merri Creek at Roseneath Street, Yarra Bend	38	6.9	9.1	191.4	9.5	0.17	1.741
Moonee Ponds Creek at Racecourse Road, Flemington	44	6.9	8.9	1,525.1	11.5	0.19	3.93

Waters of Western Port Bay & Catchment	DO% Min	pH Min	pH Max	E Coli Geomean	Turb 50%	TP Max	TN Max
	% sat	ph units	ph units	org/ 100ml	NTU	mg/l	mg/l

### Lowlands & Phillip Island

	80	6.5	9	200	15	0.05	0.6
Watsons Creek at Dandenong-Hastings Road, Somerville	18	6.6	7.6	528.2	14	3.6	291.575
Warrangine Creek at Frankston-Flinders Road, Hastings	43	7.2	8.3	188.8	9	0.11	4.808
Cardinia Creek at Ballarto Road, Cardinia	60	7.1	10	205.0	19.5	0.12	1.937
Toomuc Creek at Ballarto Road, Rythdale	36	6.8	8.1	148.0	27.5	0.28	2.311
Deep Creek at Ballarto Road, Rythdale	30	6.7	7.8	201.8	68.5	0.96	3.632
Bunyip River at Healesville Koo-Wee-Rup Road, Koo-Wee-Rup	20	4.3	8.5	23.5	18.5	0.59	3.1035
Yallock Outfall at South Gippsland Highway, Monomeith	46	6.7	7.9	135.3	80.5	0.52	10.464

### Northern Hills

	85	6.5	9	200	5	0.03	0.2
Cardinia Creek at Chadwick Road, Upper Beaconsfield	55	6.9	8.7	59.9	8.5	0.043	3.27
Toomuc Creek at Princes Highway, Pakenham	42	7	8.1	184.5	8	0.11	1.478
Tarago River at Morrisons Road, Labertouche	61	7.1	8.3	324.3	8	0.052	1.357
Bunyip River at North Labertouche Road, Labertouche	53	6.7	8.2	68.3	8	0.042	0.998
Bunyip River d/s Cannibal Creek, Longwarry North	66	7	8.2	387.8	11.5	0.054	0.994

### Peninsula

	80	6.5	9	200	15	0.05	0.6
Merricks Creek at Bridge Street, Merricks (Beach Road)	29	6.9	8	190.1	11.5	0.28	5.105

### South Eastern Rural

	80	6.5	9	200	15	0.05	0.6
Bunyip River at Little Road, Iona	60	7	8.2	663.4	11	0.1	0.994
Lang Lang River at South Gippsland Highway, Lang Lang	42	6.7	8	198.8	27	0.31	6.436
Lang Lang River upstream Drouin-Poowong Road, Athlone	30	7	8.1	360.5	16.5	0.31	5.329

<b>Waters of Victoria</b>	<b>EC 75%</b>	<b>DO% 25%</b>	<b>pH 25%</b>	<b>pH 75%</b>	<b>E Coli Geomean</b>	<b>Turb 75%</b>	<b>TP 75%</b>	<b>TN 75%</b>
	uS/cm	% sat	ph units	ph units	org/ 100ml	NTU	mg/l	mg/l

### Cleared Hills & Coastal Plains Werribee/Maribyrnong

	<i>1500</i>	<i>85</i>	<i>6.5</i>	<i>8.3</i>	<i>150</i>	<i>10</i>	<i>0.045</i>	<i>0.6</i>
Maribyrnong River at Brimbank Park Ford (upstream Taylors Creek), Keilor	2025	56	7.575	8	73.2	22.75	0.06425	1.20075
Maribyrnong River at Canning Street Ford, Avondale Heights (EPA 6070)	2000	62.25	7.775	8.2	116.0	22.5	0.07375	1.374
Steele Creek at Rose Avenue, Niddrie	1115	67	7.775	8.2	357.0	7	0.0515	0.753
Stony Creek at Bena Street, Yarraville	560	71	7.775	8.75	467.7	14.25	0.3175	3.084
Kororoit Creek at Millbank Drive, Deer Park (Replaces EPA5509)	2162.5	53.5	7.55	7.9	109.3	10.5	0.065	0.732
Kororoit Creek at Racecourse Road Ford, Altona	20075	73	7.8	8.45	84.5	32.75	0.24	1.471
Skeleton Creek at Ayr Street, Laverton	4840	48.5	7.2	7.8	184.8	15.25	0.1625	0.97963
Maribyrnong River at end of Newsom St. 500m d/s of Ascot Vale MD, Ascot Vale West	46250	66.75	7.75	8	44.6	14	0.155	0.859

### Cleared Hills & Coastal Plains Westernport

	<i>500</i>	<i>85</i>	<i>6.4</i>	<i>7.7</i>	<i>150</i>	<i>10</i>	<i>0.045</i>	<i>0.6</i>
Dandenong Creek at Boronia Road, Wantirna	485	26.5	7.3	7.725	239.7	19.75	0.1175	1.616
Dandenong Creek at Stud Road, Dandenong North (EPA 5654)	436.25	68	7.5	7.975	161.5	38.5	0.08825	1.23775
Dandenong Creek at Pillars Crossing, Dandenong South	690	63.5	7.6	7.925	135.5	54.25	0.09175	1.1565
Corhanwarrabul Creek at Wellington Road, Rowville	1025	57.5	7.3	7.725	231.7	32.25	0.094	1.3635
Mile Creek at Cheltenham Road, Keysborough	2200	77.75	7.5	8.1	406.1	14.25	0.08075	1.60475
National Water Sports Centre outlet, Bangholme (EPA 5682)	5900	65.5	7.825	8.125	99.5	57.25	0.135	1.8005
Hallam Main Drain at South Gippsland Highway, Hampton Park	1020	54	7.375	7.725	115.6	19.75	0.07275	1.25125
Eummerring Creek at Worsley Road, Bangholme	775	71.75	7.575	8.1	151.1	29.5	0.17	1.42675
Mordialloc Creek at Wells Road, Mordialloc	18625	50.75	7.175	7.7	285.9	42.5	0.23	1.397
Kananook Creek at Wells Street, Frankston	52750	56.75	7.5	7.925	171.6	18.25	0.1525	0.7995
Elster Creek at Cochrane Street, Elwood	695.75	81.75	7.925	9	576.5	13.75	0.10275	1.52325
Balcombe Creek at footbridge off Uralla Drive, Mt Martha	1675	55.75	7.275	8.025	229.3	25.25	0.115	1.75475
Dunns Creek at Marine Drive, Safety Beach	4275	64.75	7.4	7.85	319.0	13.75	0.066	1.073
Chinamans Creek at Eastborne Road, Rosebud West	1625	28.75	7.425	7.775	219.1	13	0.13	2.9955
Main Creek at Boneo Road, Flinders	2400	76	7.75	8.2	76.9	10	0.0735	1.214

### Forest - A

	<i>100</i>	<i>90</i>	<i>6.4</i>	<i>7.7</i>	<i>150</i>	<i>5</i>	<i>0.025</i>	<i>0.5</i>
Dandenong Creek at Sheffield Road, Doongalla Forest	166	69	6.975	7.7	59.5	13.25	0.0195	1.19375

## **Reporting Alert Levels for Waterway Water Quality**

Water quality alert levels were agreed between EPA Victoria and Melbourne Water in 1994. Alert levels are generally well above water quality objectives specified in relevant State Environment Protection Policies, representing instances of particularly undesirable water quality. Melbourne Water is required to report all alert-level exceedances that occur within our jurisdiction to provide a means of identifying sites that often experience poor water quality and also to provide a mechanism for locating and mitigating chronic pollution problems.

The number of sites for which MWC reports alert level exceedances has increased from 74 to 136. From January to March 2008, a total of 233 (including the new sites) alert-level exceedances were reported to EPA Victoria, or about 3 % of the total number of water quality measurements.

This compares with 3.3% of the total number of sites reported in the third quarter last year. There were 12 sites with six or more exceedances mainly resulting from low level of oxygen and high level of nutrients. Exceedances were most commonly reported for Yallock Outfall at South Gippsland Highway, Brushy Creek at Lower Homestead Road Bridge, Wonga Park and Watsons Creek at Dandenong-Hastings Road - Somerville. Water quality in the Yallock Outfall and Watsons Creek suffers from market garden runoff run off in their catchment while exceedances in Brushy creek are most likely related to the wastewater treatment plant upstream.

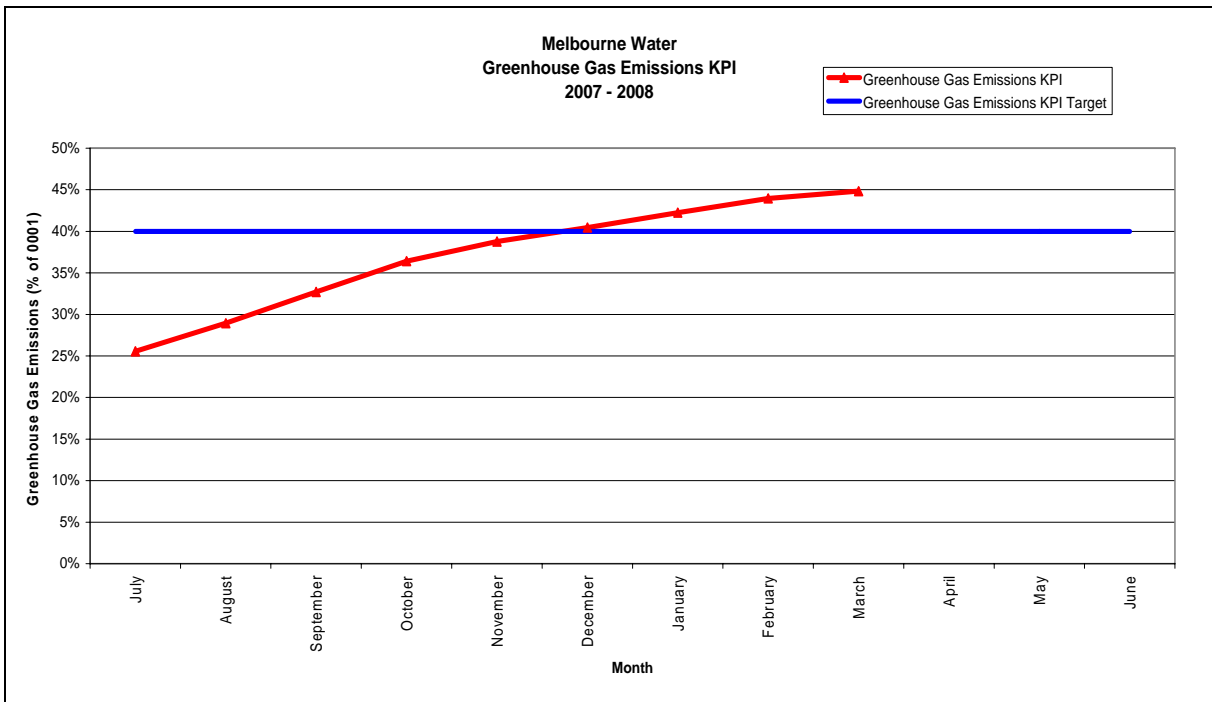
## Renewable Energy and Greenhouse Gas Emissions Performance

Melbourne Water has established Key Performance Indicators for increased renewable energy and reduced greenhouse gas emissions. While there are no strict regulatory requirements for these, there are increasing soft regulatory requirements such as EPA Victoria’s discharge licence requirement to implement energy efficiency projects with pay back periods of three years or less. The Commonwealth Government is also introducing similar requirements for businesses that use more than 0.5 PJ of energy each year and Melbourne Water uses about 2 PJ.

The following graphs show performance against the two Key Performance Indicators. The definition for each is included with each graph. For information two additional charts are included showing the energy content of sewage and water and the fuel efficiency of Melbourne Water’s vehicle fleet.

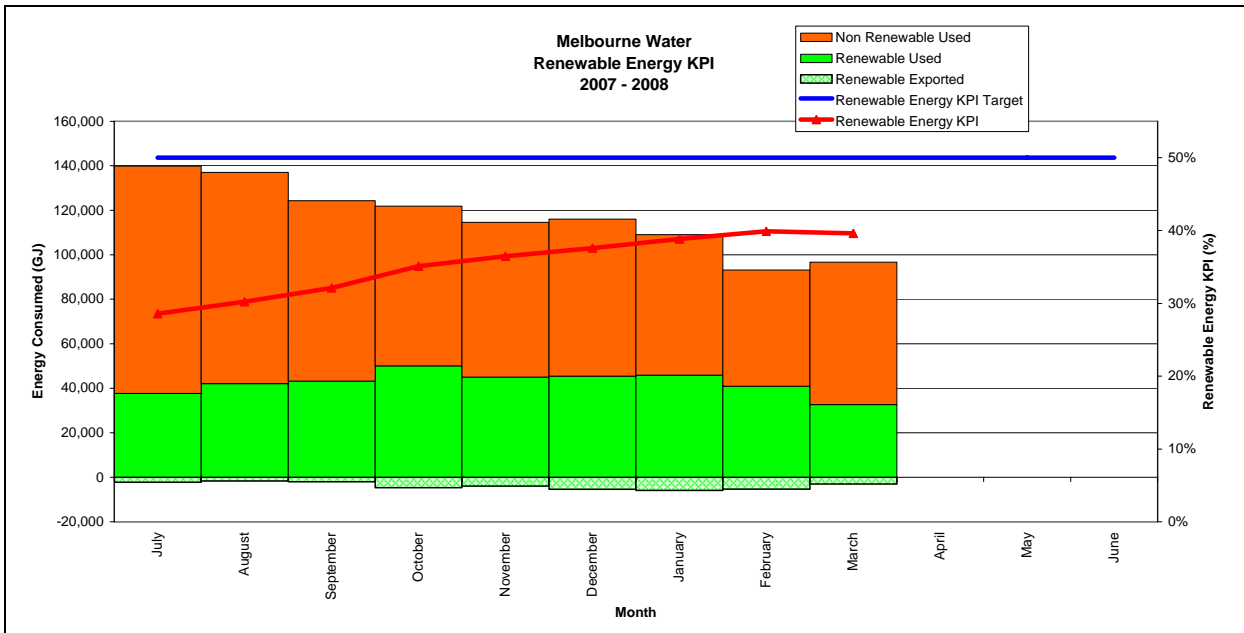
### Greenhouse Emissions KPI

$$= (\text{Total Emissions 2000/01} - \text{Total Emissions 2005/06}) / \text{Total Emissions 2000/01}$$



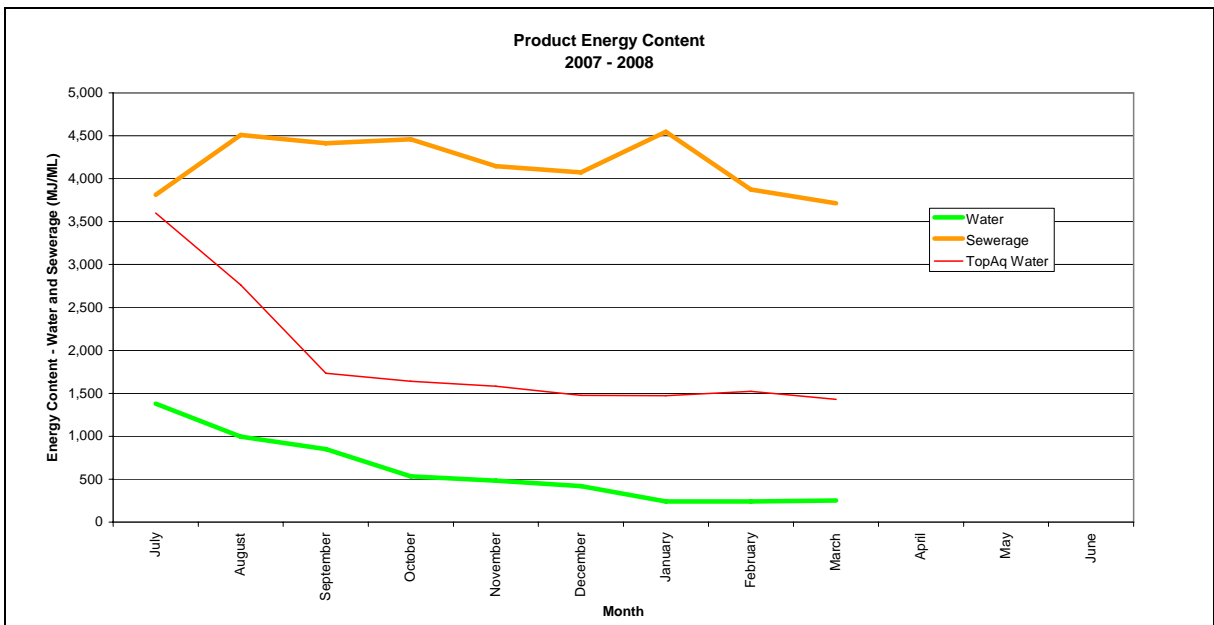
**Renewable Energy KPI**

= Renewable Energy Produced or Used / Total Energy used by Melbourne Water



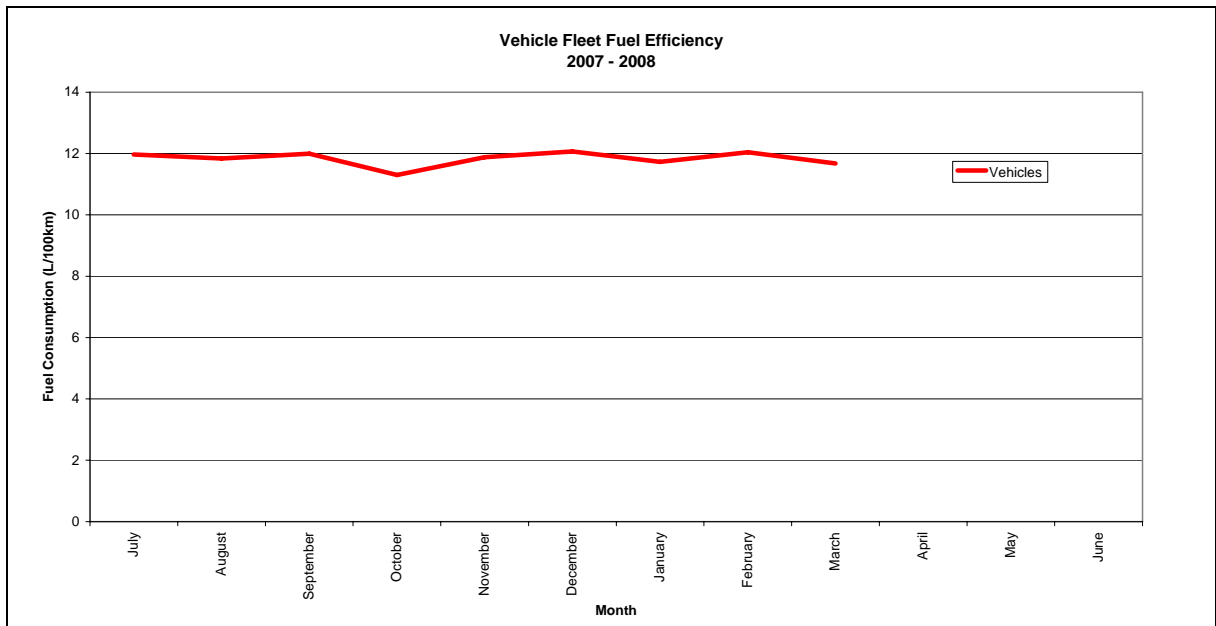
**Energy content**

Energy content is how much energy Melbourne Water or Earth Tech (TopAq Water) uses to produce a ML of product. Earth Tech’s line is the average energy required per ML of Class A water from ETP effluent.



## Vehicle fleet efficiency

On average how much fuel is used to travel 100 kms.



## Catchment Profile

### A Preliminary Assessment of Fish Barriers in the Little River and Bass River Catchments



Weir on Little River near Little River township.

As part of the Regional River Health Strategy, Melbourne Water plans to remove 33 fish barriers opening up 1500 km of waterways for fish movement. An investigation into fish barriers in the Little River and Bass River catchments was conducted to identify potential benefits to movement of native fish populations and to prioritise passage improvement works.

Three instream barriers were identified as high priority sites including a causeway on the Little River estuary and two stream gauging weirs on the Bass River. These currently restrict movement of migratory fish within both the main stem and headwater tributaries. Diadromous fish species (those that use both fresh and marine waters) need to migrate to freshwaters to complete various stages of their life cycle. The causeway in Little River restricts diadromous fish from entering freshwater reaches.

The report recommended minor works for a number of small tributaries of the Little River and Bass River catchments to improve connectivity of resident populations. More expensive works requiring large structures, however, could not be justified based on expected benefits.

## Appendices

### Appendix One: Guide to Terms

Parameter	Units	Explanation
<b>BOD</b> <i>Biochemical Oxygen Demand</i>	mg/L*	A measure of the oxygen depleting potential of waste - usually measured over a five day period.
<b>CBOD</b> <i>Carbonaceous Biochemical Oxygen Demand</i>	mg/L*	A measure of the oxygen depleting potential of the carbonaceous (organic) portion of the waste - usually measured over a five day period.
<b>SS</b> <i>Suspended Solids</i>	mg/L*	A gravimetric measure of undissolved matter, when retained on filter.
<b>Amm</b> <i>Ammonia</i>	mg/L*	A form of nitrogen, present in untreated sewage and many industrial wastes. Is toxic to certain fish and marine species.
<b>Surf</b> <i>Anionic Surfactants</i>	mg/L*	Surface active agents, associated with detergents
<b>pH</b>	numeric	A measure of the acidity (pH 0-7) or alkalinity (pH 7-14) of sample. Pure water is slightly acidic, due to dissolved carbon dioxide.
<b>TRC</b> <i>Total Residual Chlorine</i>	mg/L*	A measure of the remaining chlorine associated with the disinfection of effluent.
<b>D.O.</b> <i>Dissolved Oxygen</i>	mg/L*	An indication of "waterway health". Levels may deviate from saturation by pollutant depletion, or supersaturation due to algal activity.
<b>Metals</b>	mg/L* or µg/L#	Are an indication of contamination. Metals tested include lead, cadmium, chromium, copper, zinc, nickel and mercury.
<b>E. coli</b> <i>Escherichia coli</i>	no. of organism s/ 100ml	A common bacteria from the intestines of warm blooded animals. Used as an indicator of faecal contamination.
<b>PAH's</b> <i>Polynuclear Aromatic Hydrocarbons</i>	µg/L#	Polynuclear Aromatic Hydrocarbons are by-products of petro-chemical industries and combustion processes. Many PAH's are highly carcinogenic.
<b>Total P or TP</b> <i>Total Phosphorus</i>	mg/L*	Measured as phosphate after acid digestion of total sample to convert all combinations of phosphorus to phosphate.
<b>Phenols</b>	µg/L#	Phenols are widely used in resins, disinfectants and industrial products. Trace residuals are resistant to decomposition.
<b>Total N or TN</b> <b>Total Nitrogen</b>	mg/L*	The total amount of nitrogen comprising organic nitrogen, ammonia, nitrate and nitrite
<b>Turb</b> <b>Turbidity</b>	NTU	Cloudiness caused by materials suspended in water
<b>EC</b> <b>Electrical conductivity</b>	µS/cm	A measure of the ability to conduct an electrical current and used as an indicator of salinity
<b>Org N</b> <i>Organic Nitrogen</i>	mg/L*	A distinction between the inorganic nitrogen forms (ammonia, nitrite and nitrate), and the organic compounds present in food/body wastes. (proteins, amines)

\* milligrams per litre of water sampled - is equivalent to parts per million

# usually expressed as micrograms per litre of water sampled - is equivalent to parts per billion

## **Appendix Two: Details of the Environmental Impact Rating of Sewer Spillages**

The development of an environmental impact rating for sewer spills includes the following factors:

- environmental quality of the receiving water;
- spill content;
- dilution of effluent in receiving water; and
- the volume of the spill.

The impact rating is based on a procedure that considers the various combinations of grade for each of the factors together and then groups them into an impact rating based on a simple model. Each possible combination of grades has been put into one of the ratings from one to five. Although this may appear to be an arbitrary process, the results represent a reasonable estimation of the potential environmental impact of a spill from a sewer.

The environmental impact rating is an indication of the potential impact of spill events, not a measure of actual impact.

### Examples

An example of a significant spill achieving an impact rating of “5” occurred during Period 12 1994/95. ERS number 327 discharged 10 826 Kl of untreated sewage into the Maribyrnong River. The volume of this spill was the key determinant in the spill classification of “5”.

ERS number 327 discharged on another occasion during Period 12 1994/95 resulting in 68 Kl of sewage being discharged into the Maribyrnong River. This spill was given a rating of “2” due to the relatively minor volume of sewage discharged into the waterway and was not regarded as significant.

## **Appendix Three: Melbourne Water Spillage Reporting**

How Melbourne Water reports sewerage system spills within Melbourne Water and to EPA Victoria is described below.

All spills, regardless of volume or content, are reported internally or to an external authority. The significance of the spill determines the reporting process.

### Spills where there may be an environmental or public health hazard\*

1. Immediately by phone or fax using the EPA NOTIFICATION OF SEWER SPILL form by a senior manager to EPA Victoria.
2. These spills require a SEWER SPILL NOTIFICATION FOLLOW-UP report to EPA Victoria within 21 days of the spill.
3. Subsequent written reports are provided to Melbourne Water executives (as required) and EPA Victoria (quarterly).

Where there is potential for a public health impact DHS is also notified.

### All Spills (including spills of low significance)

1. Each period, a summary of all spills is included in the Business Unit's Operating Report to Board.
2. The Quarterly Board Environmental Compliance Report provides more details on all spills.
3. A Quarterly Spills Report summary of spills is forwarded to EPA Victoria.

\*Hazards that require immediate follow up include where there is a:

- public health concern
- sensitive receiving environment
- large industrial or commercial waste component
- sewer spill very visible in a public area
- potential for media involvement
- sewer pipe 300mm diameter or greater
- flow >80L/min (ie: two house taps going flat out for approx hour = 5 KL)

## **Appendix Four: Description of the Phases of Trade Waste Agreement Restrictions**

The retail water companies use a risk-ranking model as one of the tools used to manage trade waste discharged to sewer. The risk-ranking model has been developed over many years and takes into account key aspects of each customer's circumstances.

These include:

- Location of the discharge in relation to the receiving sewage treatment plant;
- Volume of trade waste discharged to sewer;
- Compliance history of the customer;
- Activities undertaken on the customer's site which generate trade waste; and
- Substances in the trade waste.

The risk-ranking model calculates a risk weighting for each customer and from this customers are allocated to one of five risk categories, with a risk ranking of 1 being the highest risk and 5 being the lowest. The risk rating determines the level of monitoring required for a company.

Retail water companies initiate a three-step management process when a customer does not comply with the conditions of their Trade Waste Agreement or Consent.

Stage 1:

When a non-compliant sample is identified, an Initial Trade Waste Notice is issued. The Notice specifies how the trade waste fails to comply and requires the customer to remedy the problem, provide written documentation explaining reasons for the non-compliance and the steps taken to ensure it will not happen again.

Stage 2:

If further samples of trade waste do not comply after the date specified in the Notice a letter is issued requiring the customer to:

- review its waste treatment processes;
- attend a meeting to discuss the cause of the non-compliance and processes to prevent a recurrence; and
- meet costs in ensuring trade waste complies with the Agreement.

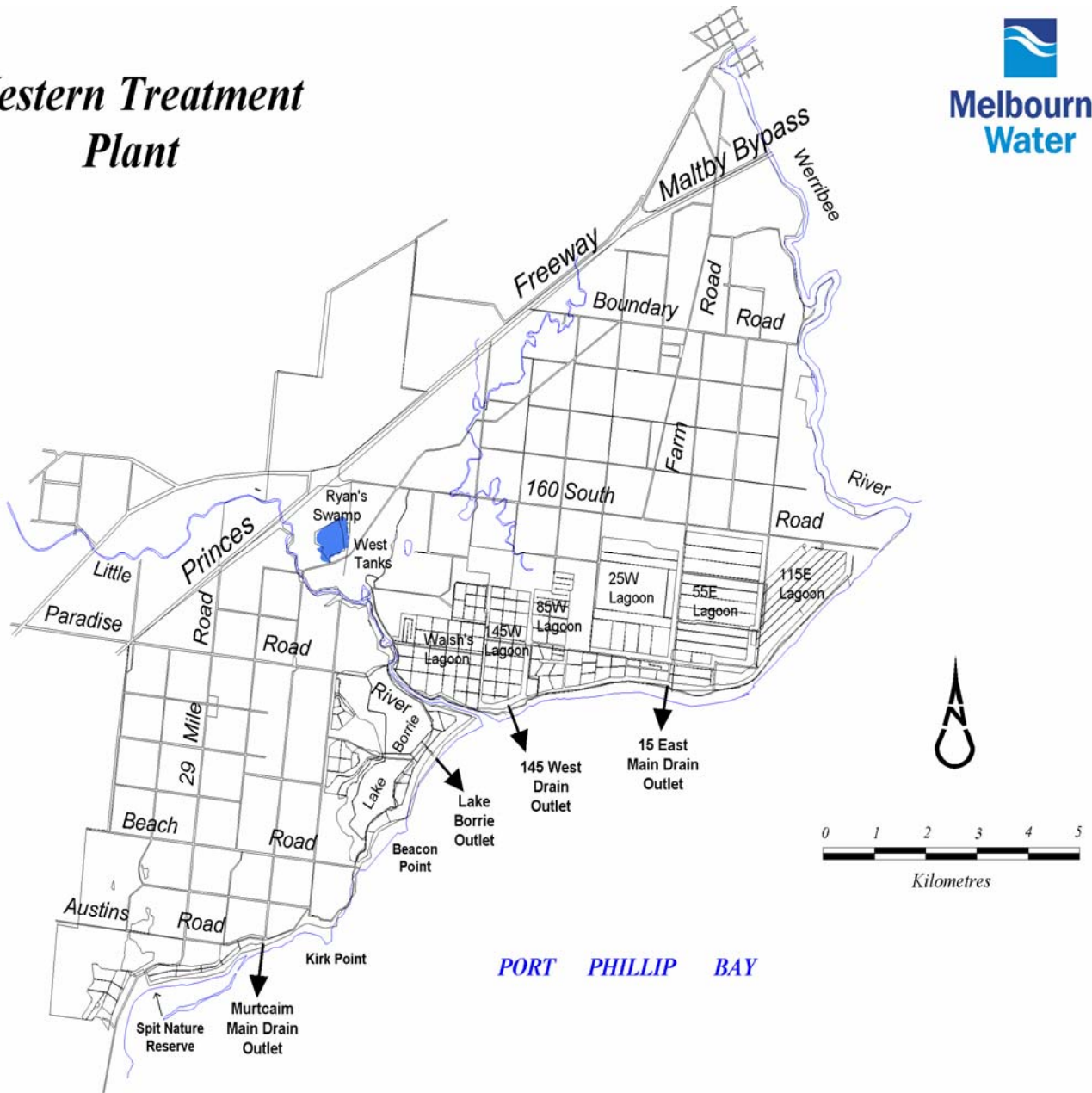
Stage 3:

Samples of trade waste will continue to be taken and analysed and no further action will be taken if the trade waste becomes compliant. However if a sample does not comply a Notice of Breach will be issued setting out a date by which the trade waste must comply with the Agreement.

If the trade waste does not comply by the set date the customer must cease discharging trade waste to the sewer immediately, the trade waste connection point will be sealed and the media may be informed. Any further discharge of waste will be liable to a fine of up to \$20,000 and up to \$8000 for each day during which waste is discharged. Before any further trade waste can be discharged, a new Agreement must be negotiated and the customer must prove it will achieve on-going compliance.

**Appendix Five: Map of Western Treatment Plant Discharge Points**

*Western Treatment Plant*



## **Appendix Six: Environment Protection Authority (EPA) Enforcement Policy**

The Environment Protection Act (1970) establishes the Environment Protection Authority to provide for a system of administration to ensure a high standard of environmental quality. The Act allows for a range of regulatory and non-regulatory activities including implementation of State environment protection policies, environmental monitoring and community education programs.

### **EPA Investigations**

After an incident has been reported to the EPA, authorised officers from the EPA have the power under the Environmental Protection Act (1970) to embark upon an investigation. The investigation may involve:

- entry to the premises to take samples, photographs, tests, etc
- requesting information such as files, maps and or other documents relating to the incident
- identifying the occupier of the premises
- ordering clean-up procedures
- conducting formal interviews with management or individuals associated with the incident

### **Enforcement Measures**

After investigation of a particular incident by the EPA the following enforcement measures are available under the Environment Protection Act (1970):

- warnings
- directions by an authorised officer
- notices
- infringement notices
- prosecutions
- licence suspension or revocation
- injunctions

### **Mounting a Prosecution - What is considered**

In brief, the following factors are taken into account when deciding upon the most appropriate enforcement measures following an incident:

- the seriousness of the offence and harm to the environment
- previous history of offences
- the prevalence of the offence in the eyes of the public
- enforcement costs for the EPA
- the precedent which may be set by not taking enforcement action
- the cooperation of the alleged offending individual or company.

## **Melbourne Water and EPA Victoria**

Melbourne Water could be subject to formal investigation by EPA Victoria in relation to incidents such as the 1992 Epsom Road Sewer Collapse and subsequent unlicensed discharge into the Maribyrnong River.

Melbourne Water has maintains a long-term cooperative relationship with EPA Victoria, including Quarterly Liaison Meetings of senior managers. This working relationship has resulted in open and honest communication so that the interaction between Melbourne Water's environmental performance and EPA Victoria's expectations holds no surprises.

Every incident such as the overflow of untreated sewage from an Emergency Relief Structure into a waterway could be regarded as an unlicensed discharge and an offence under the Environment Protection Act (1970). Where such incidents lead to unclear regulatory requirements steps are taken so that a clear position is developed. For example EPA Victoria has clarified that releases from the sewerage system through Emergency Relief Structures are compliant if they occur during rainfall events in excess of 1 in 5 years.

## **Appendix Seven: Emergency Response Procedures in Melbourne Water**

A critical element of Melbourne Water's risk management process is ensuring the Corporation is prepared for and can effectively respond to and recover from incidents with potential to have an impact on our stakeholders, customers, the broader community or the environment.

Melbourne Water has established PERFORM (Prompt Emergency Response for Melbourne), which outlines the responsibility all Melbourne Water people have in incident management and details how we will respond to an incident in an integrated manner. The program highlights the need for thorough planning, preparation and training as a means of ensuring the effective and efficient management of any incident.

PERFORM is more than an incident management program, it is a comprehensive risk management program which incorporates prevention, preparedness, response and recovery for any adverse incident which could affect Melbourne Water.

The aims of PERFORM are to:

- Prevent or reduce the risks of incidents occurring in Melbourne Water
- Prevent or reduce the impact and consequences of incidents on customers, local community, stakeholders, environment, service delivery, system assets and operations
- Promote and support the maintenance and control of effective incident and emergency management processes

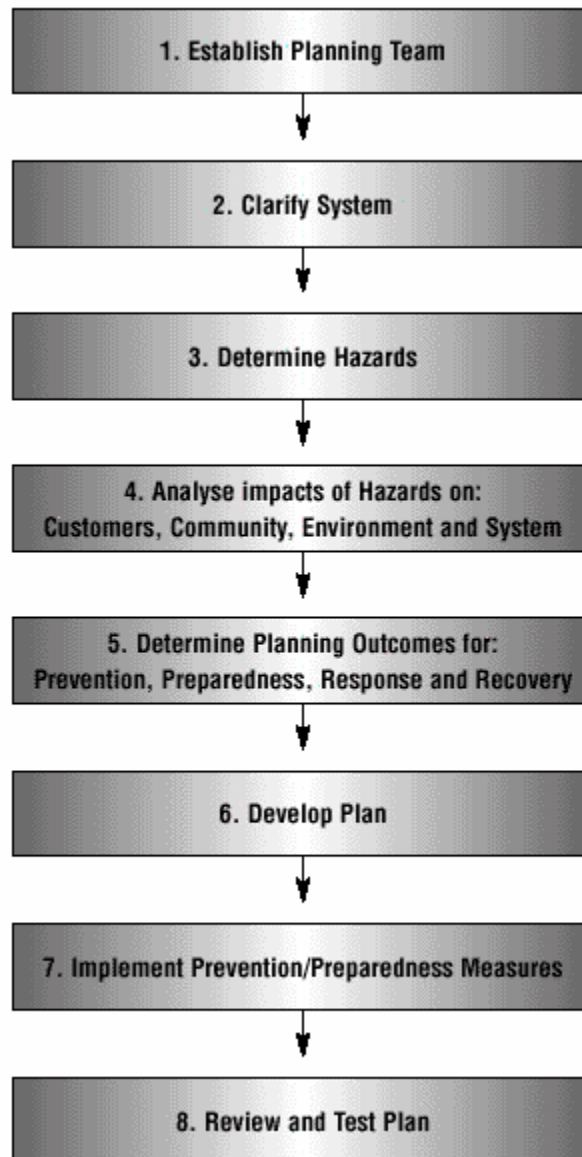
An *Incident* is any event or circumstance within our, or our customers operations that causes or is likely to cause:

- An interruption of service to customers
- A threat to our systems
- A threat to community health and safety
- A threat to the environment
- A threat to private or public property.
- The creation of the need for urgent action under statute or legislation

PERFORM incidents are categorised into five types. The following table defines the incident types and provides some examples of each type:

<b>Category</b>	<b>Definition</b>	<b>Examples</b>
<b>Near Miss</b>	A Near Miss is an unintended event that, but for the intervention of a risk control measure or human intervention, is likely to have resulted in a minor, significant or major incident, or in an emergency.	<ul style="list-style-type: none"> <li>• Detection of a chlorine release of greater than two ppm, but less than 10 ppm at Winneke water treatment plant</li> <li>• Lost bush walkers in catchment area</li> </ul>
<b>Minor</b>	<p>A Minor Incident is one where local work teams, under normal supervision, can effectively cope with little or no adverse effects on the Corporation, its customers and the community.</p> <p><i>Note: If the media become involved, a Minor Incident becomes a Major Incident.</i></p>	<ul style="list-style-type: none"> <li>• Minor motor vehicle accident</li> <li>• Short duration computer system malfunction</li> <li>• Minor flooding</li> <li>• Vandalism in catchment area</li> <li>• Employee or contractor/visitor injury</li> <li>• Intentional access to catchment area</li> </ul>
<b>Significant</b>	<p>A Significant Incident is one that can be managed at the site level but:</p> <ul style="list-style-type: none"> <li>• May need external resourcing over and above that which is usually used by the work team; and/or</li> <li>• The actual or potential impact on the Corporation, its customers, the community and the environment is more widespread.</li> </ul> <p><i>Note: If the media become involved, a Significant Incident becomes a Major Incident.</i></p>	<ul style="list-style-type: none"> <li>• Burst main causing some property damage</li> <li>• General sewer stoppage with contained spill</li> <li>• Moderate flooding</li> <li>• Prolonged SCADA outage</li> <li>• Minor industrial actions</li> <li>• Asset or system failure causing property damage</li> <li>• Intentional damage to catchment area</li> </ul>
<b>Major</b>	<p>A Major Incident is one which requires off-site co-ordination with major levels of external resourcing and support; and/or causes or has the potential to cause major impact on the Corporation, its customers, the community and the environment.</p> <p><i>Note: All incidents which involve the media are to be considered as Major Incidents</i></p>	<ul style="list-style-type: none"> <li>• Burst main in a large shopping centre</li> <li>• General sewer stoppage resulting in an uncontained spill</li> <li>• Major or widespread flooding</li> <li>• Bushfire in water supply catchments (natural or intentional)</li> <li>• Dam failure</li> <li>• Major industrial action</li> <li>• Asset or system failure causing major property damage</li> </ul>
<b>Emergency</b>	<p>An Emergency is an event which significantly impacts Melbourne Water's ability to continue its operations. It will affect Melbourne Water's:</p> <ul style="list-style-type: none"> <li>• Operability (acceptable level of service)</li> <li>• Image or reputation (community, media, political)</li> <li>• Liability (legal, financial)</li> </ul>	<ul style="list-style-type: none"> <li>• Any of the above major incidents</li> <li>• Fatality or multiple injuries</li> <li>• Loss of stakeholder support</li> <li>• Corporate governance/compliance issue</li> <li>• Occurrence of any of the five key metropolitan water industry threats</li> </ul>

PERFORM does not only involve cleaning up after an incident. It also involves planning, training, procedure documentation and test planning. The incident management planning process is described below;



PERFORM applies to all Melbourne Water operations and business areas. Each group has generic plans to cover routine system faults for the different water supply, wastewater and drainage operations or for any other activity that has potential to have an impact on Melbourne Water's business, its customers or the community.

A contingency plan is a series of processes or procedures to prevent, prepare for, and respond to and recover from events that can be foreseen to occur that can affect our operations or service delivery. It identifies any potential problem areas, and provides options for containing and controlling such events.

Each manager is responsible for determining the probability and consequences of failure of assets, systems and work practices, as well as for preparing contingency plans to deal with any failure.