



**Melbourne
Water**

Environmental Compliance

Six Monthly Report

Quarters Three and Four 2008/2009
(January - June)

Incidents, Initiatives and Issues

Incidents

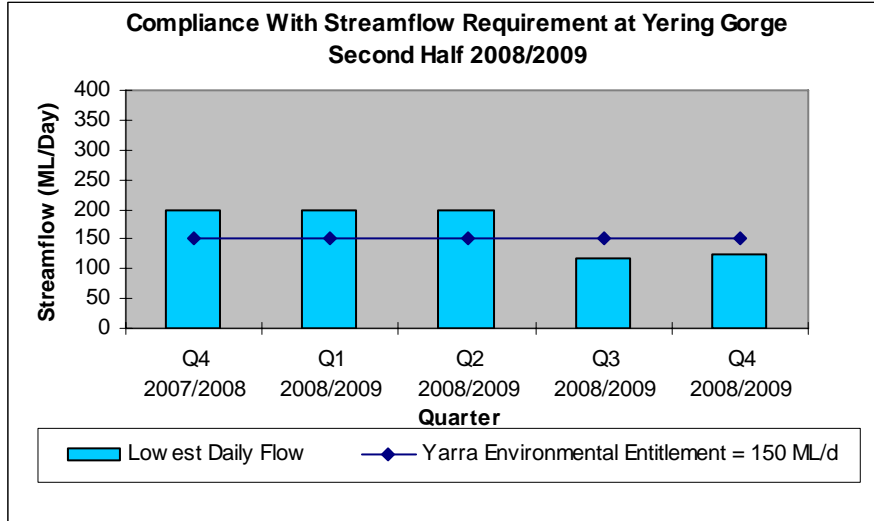
The 2009 summer bushfires caused a significant amount of damage to biodiversity in the effected areas. Environmental recovery begins soon after the fires are put out and this report's Catchment Profile describes Melbourne Water's recovery effort to date.

Initiatives and Issues

None to report.

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 Phase 1 and 2 qualifications described in detail within previous compliance reports. 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 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 Gorge. During low inflows to the Upper Yarra and O'Shannassy Reservoirs, these releases are limited to either 50% of these inflows or 80ML/day.

The minimum flow at Yering Gorge was 116 ML/day during the two quarters and Melbourne Water met the requirements of the Yarra Drought Response Plan by ensuring environmental releases and abstraction activities were managed in accordance with the qualified environmental entitlements.

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 qualifications will cease after the removal of Stage 2 restrictions.

Sewerage System Summary of Statutory Compliance by Facility

Summary of Compliance by Facility

Quarter Three and Four 2008/2009

Facility	Compliance * of Samples				Sewage Spills***	Odour Complaints
	Q3 (%)	Q4 (%)	2008/09 (%)	Non-Sample Compliance**		
Eastern Treatment Plant					0	12
Western Treatment Plant					0	2
Wastewater Transfer	N/A	N/A	N/A	N/A	2	8
Total	N/A	N/A	N/A	N/A	2	22

	Compliance achieved for all parameters
	Compliance not achieved for one or more parameters.

* 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)

Annual Licence Compliance – 2008/2009

Eastern Treatment Plant

The Eastern Treatment Plant achieved 100 % compliance with effluent discharge requirements in the EPA Victoria licence during 2008/2009.

Western Treatment Plant

The Western Treatment Plant achieved 100 % compliance with effluent discharge requirements in the EPA Victoria licence during 2008/2009.

Sewerage System Statutory Compliance Detail

Compliance of Samples – 2nd Half 2008/2009

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 2008/2009

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

Quarter Four 2008/2009

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

	Compliance achieved
	Compliance not achieved** - See following sections for details
	Not applicable

* 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.

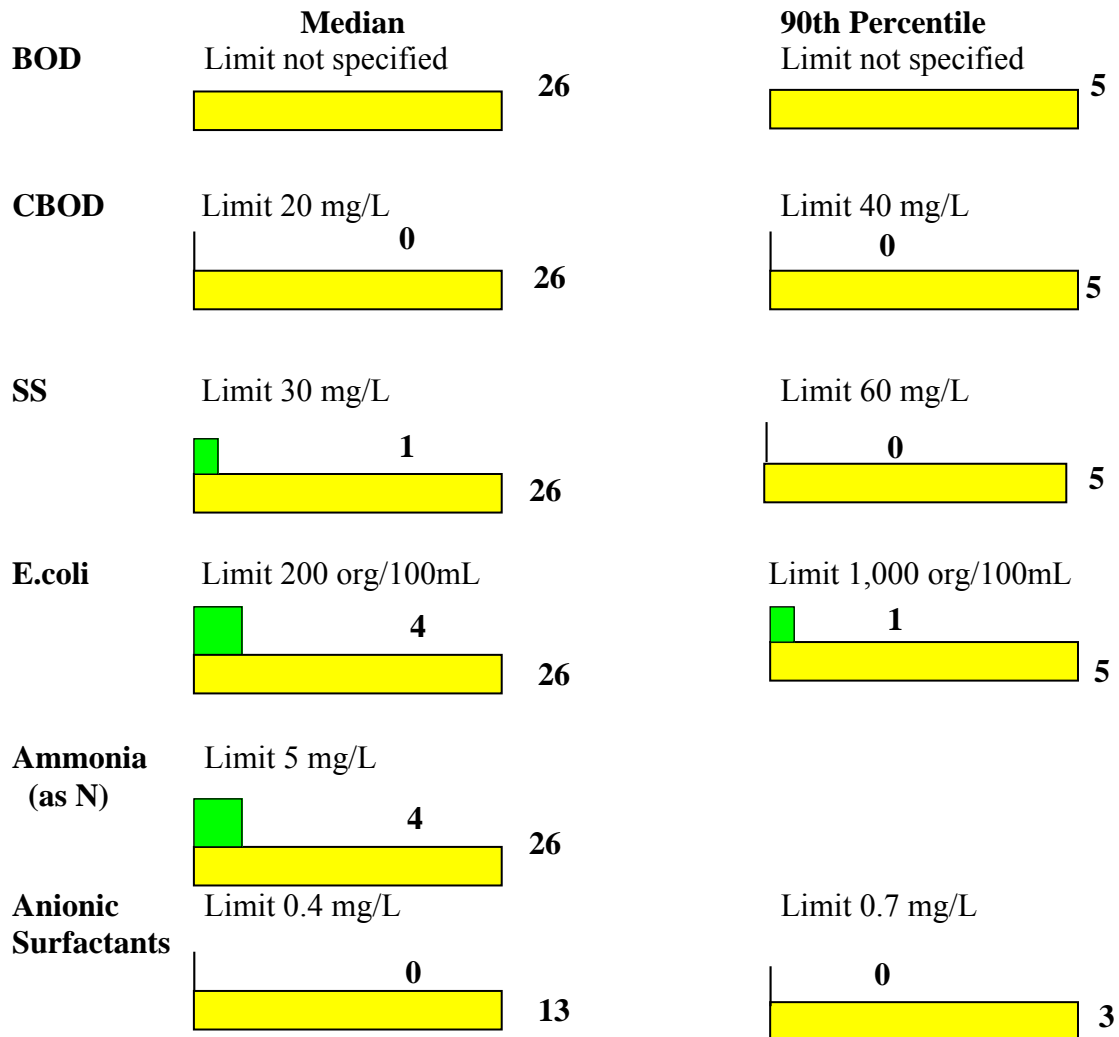
** EPA Victoria is given an explanation for each non-compliance

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

Eastern Treatment Plant fully complied with the EPA Victoria discharge licence parameters.

Groundwater Monitoring

Melbourne Water conducted routine groundwater sampling in November 2008 and the following was reported:

- groundwater flow in both shallow and deep aquifers is towards the south west, with localised flow diversions
- groundwater quality in the majority of the perimeter bores remained generally unchanged
- groundwater from bores located down gradient within the site exceed the groundwater quality objectives (TDS, nitrogen species, total phosphorus, chloride, sodium, sulphate, copper and zinc). Some of these exceedances are indicative of background groundwater at the site
- groundwater elevations of both deep and shallow bores have generally shown a decreasing trend

These results are consistent with previous results. The groundwater flow rate is slow and these localised impacts have not impacted on groundwater quality beyond the Plant boundaries.

Details of Licence Non-Compliance/Parameter Exceedances

The samples that exceeded annual median discharge licence limits are detailed below. These parameters met the respective annual limits.

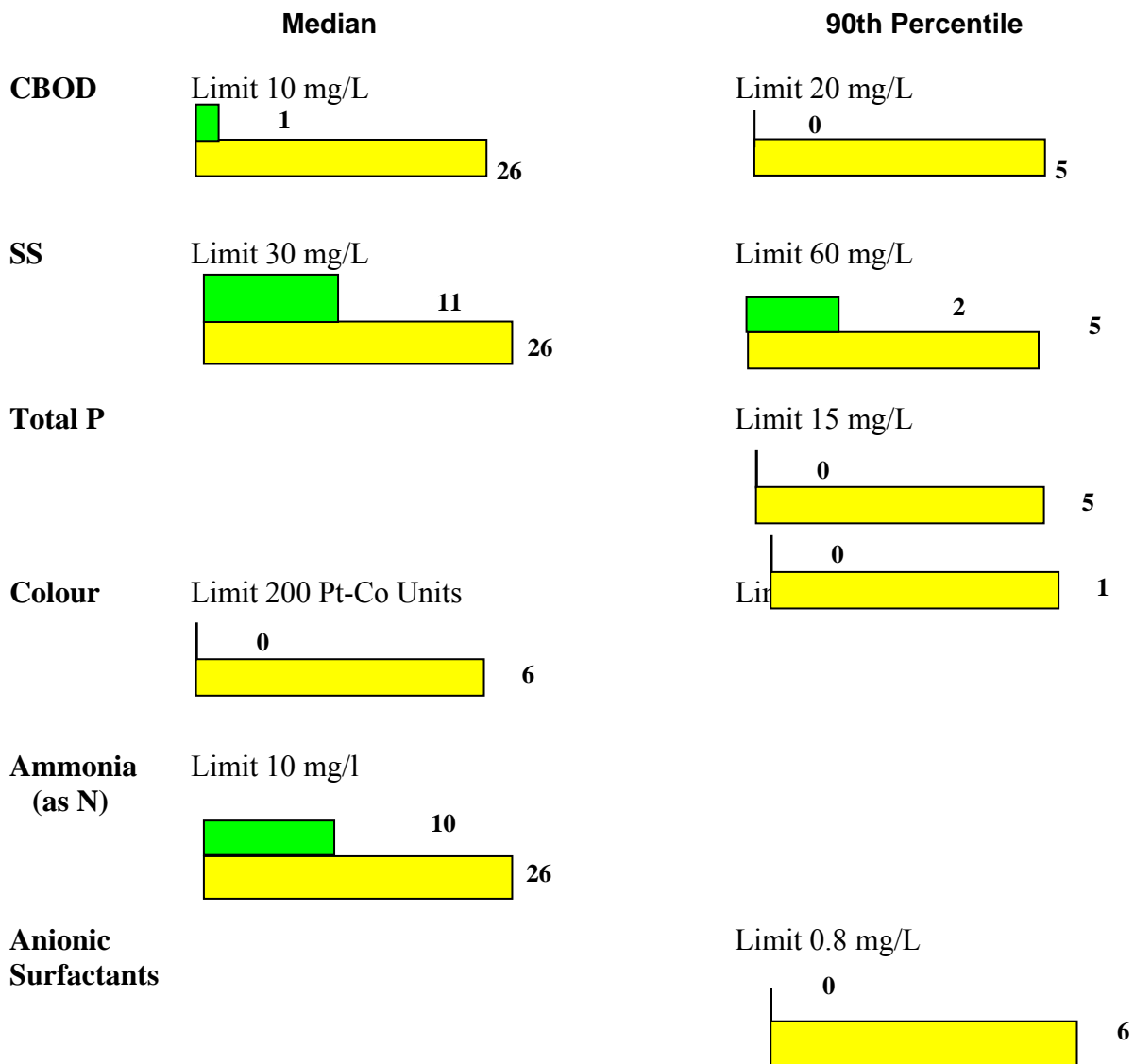
Two E.coli results taken on 14 January 2009 and 21 January 2009 were 8,800 and 540 orgs/100mL respectively. The median E.coli result for 2008/09 was 22 orgs/100mL compared to the annual median limit of 200 orgs/100mL. The 90th percentile E.coli result for 2008/09 was 176 orgs/100 mL compared to the annual 90th percentile limit of 1000 orgs/100mL.

Four ammonia nitrogen results in final effluent taken on 11 March 2009, 18 March 2009, 1 April 2009 and 13 May 2009 were 5.7, 5.1, 5.1 and 5.4 respectively. The median ammonia nitrogen result for 2008/09 was 2.9 mg/L compared to the annual median limit of 5 mg/L.

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

Western Treatment Plant fully complied with the EPA Victoria discharge licence parameters.

Details of Licence Non-Compliance/Parameter Exceedances

None to report.

Groundwater Monitoring

The report on the 2008/09 groundwater monitoring program has not yet been received and will be covered in the next report.

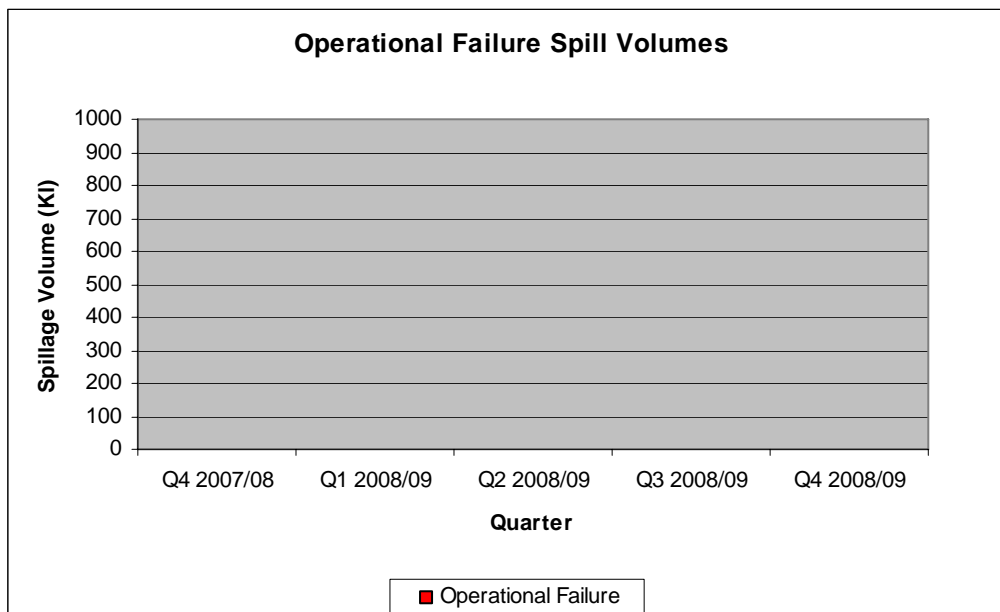
Sewage Spills Summary

Number of Spills	Q4 2007/08	Q1 2008/09	Q2 2008/09	Q3 2008/09	Q4 2008/09
Number of Spills	1	0	2	1	1
Operational failure	1	0	0	0	0
<1:5 compliant	0	0	2	1	1
<1:5 non-compliant	0	0	0	0	0
>1:5	0	0	0	0	0
Significance*	Q4 2007/08	Q1 2008/09	Q2 2008/09	Q3 2008/09	Q4 2008/09
Minor (Rating 1 - 3)	0	0	2	1	1
Significant (Rating 4 – 5)	0	0	0	0	0
Not Rated	1	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 two quarters.



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

Eastern Treatment Plant

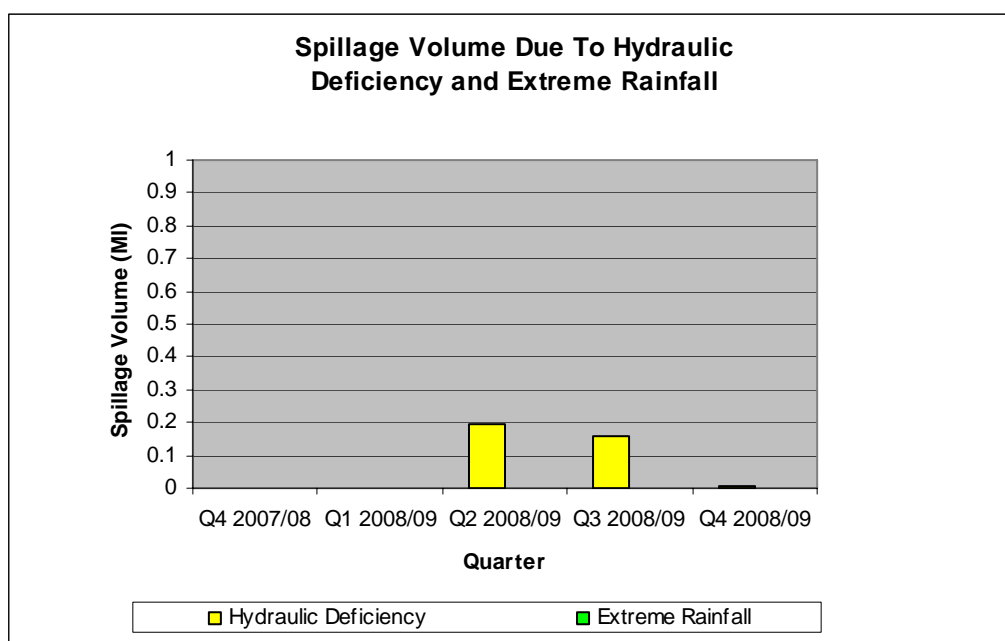
There were no spills at Eastern Treatment Plant during the two quarters.

Western Treatment Plant

There were no spills at Western Treatment Plant during the two quarters.

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

There were two spills due to hydraulic deficiency or extreme rainfall (greater than 1 in 5 event)

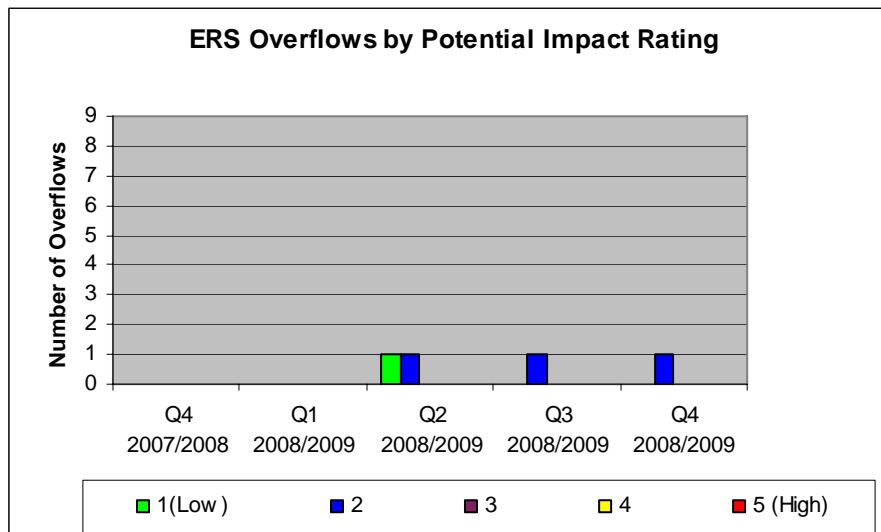


Hydraulic Deficiency - Spills due to insufficient pipe/pump capacity

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

The above graph has the y axis scale adjusted to read a maximum of 1 ML due to the low volumes spilt during the year.

ERS Overflows



14 March rainfall event

Heavy rainfall was experienced across parts of metropolitan Melbourne on 14 March 2009. There was one spill resulting from hydraulic overload of the sewerage system in the Moonee Ponds catchment. Despite optimal operation of the system one ERS located on the Pascoe Vale Main Sewer spilled approximately 0.159 ML of highly diluted sewage into the Moonee Ponds Creek over a period of approximately one and a half hours.

3 April rainfall event

Heavy rainfall was experienced across parts of metropolitan Melbourne on 3 April 2009. This resulted in the hydraulic overload of the sewerage system in the Moonee Ponds catchment. Despite optimal operation of the system one ERS located on the Pascoe Vale Main Sewer spilled approximately 0.005 ML of highly diluted sewage into the Moonee Ponds Creek over a period of approximately 35 minutes.

Follow up inspections of the site was undertaken on both occasions to ensure that surrounding areas were clean of debris and that the flap gates on the ERS had reseated correctly. Written notifications were forwarded to the EPA in accordance with agreed reporting requirements.

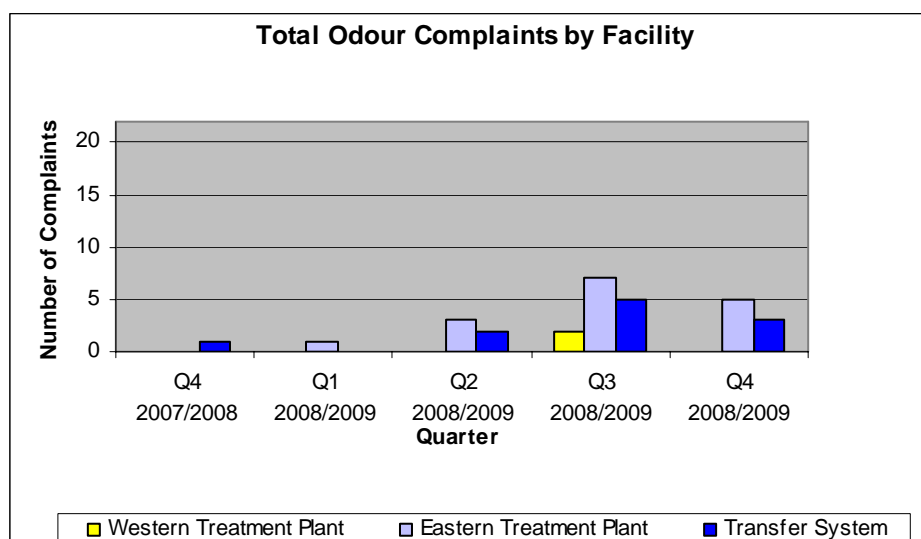
Implementing the Northern Suburbs Sewerage Strategy will eliminate sewerage spills in these areas and provide for long term growth.

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 is considered to be a licence breach by EPA Victoria at this time.



Eastern Treatment Plant

There were 12 odour complaints received during the two quarters. Details are as follows:

On 28 January 2009 a member of the public reported an odour to the control room. A site visit was unable to detect the odour and discussion with the complainant established that the odour was most likely to come from the sludge drying pans. There was no known plant process or operational issues at the time of the complaint. A wind track analysis to the time of the complaint showed light wind from the ENE crossing the mechanised area and known odour sources of the plant, as well as in the vicinity of the sludge drying pans south of Thompson road. The Plant is the likely source of the odour.

On 29 January 2009 a member of the public reported an odour to the control room at 9:00pm. A visit to the site was unable to be completed and a check of process and operational records found that there were no known issues. A wind track to the time of the complaint showed light wind was from the ENE. The wind track did not cross any boundaries of the plant, but there were sludge filling, drying and harvesting activities taking place in the drying pans. The weather conditions on the days leading up to the complaint also contributed to the odour with temperatures exceeding 30°C, increasing the rate of decomposition of the drying sludge. The Plant is the likely source of the odour.

On 5 February 2009 a member of the public reported an odour from the CFA training facility to the control room at 2:07pm. A visit to the site was completed and the odour was detectable, however a check of process and operational records found there were no known issues. The wind track showed moderate wind from SSW that had passed through the sludge drying pans south of Thompson Road. Sludge drying and harvesting works had been carried out earlier in the week and on the morning of the complaint. The Plant is the likely source of the odour.

On 13 March 2009 a member of the public reported three odour complaints for 1 March, 11 March and 12 March 2009 and machinery noise in the Bangholme area on 7 March 2009. A site visit was not possible as the complaint was received after the events. A check of process and operational records showed no known issues. Wind track analyses to the time of the complaints showed calm to moderate wind from ESE and SSE crossing the sludge drying pans and the supernatant holding basins, both known odour sources of the site. The Plant is the likely source of the odours.

On 17 March 2009 a member of the public reported an odour detected at 10:00am in the vicinity of Worsley Road and Eastlink to EPA Victoria. This was received by Melbourne Water at 6:00pm. A site visit was completed and a compost type odour was still detectable at the time of the visit and a check of process and operational records found no known issues. The wind track analysis showed moderate winds from SSW crossing the sludge drying pans south of Thompson Road. The Plant is the likely source of the odour.

On 29 May 2009 two members of the public reported odour detected in the vicinity of Bangholme on 4 March 2009 at 7.41 pm and on 8 May 2009 at 11:49 am. The complaints were received through EPA Victoria. Site visits were not able to be completed. Wind track analyses at the time showed light wind from S to SSE indicating that ETP was the likely source. A biosolids stockpile fire was the likely source of the odour detected.

On 29 May 2009 a member of the public reported odour detected in the vicinity of Well's Road, Chelsea Heights on 23 May 2009 at 11:35 am. The complaints were received through EPA Victoria. Site visits were not able to be completed and a check of process and operational records found no known issues. Wind track analyses at the time showed light wind from the SSE crossing the northern sludge drying pans. There are other odorous sources in the area. Melbourne Water will work with the EPA to improve the reporting of odour complaints they receive to enable timely site visits to assist in odour identification and determination of the cause of the odour. The Plant is a likely source of the odour.

On 16 June 2009 a member of the public reported an odour detected in the vicinity of McMahens Road, Bangholme at 2:00pm. A site visit showed the odour was still detectable but a check of process and operational records found no known issues. A wind track analysis

at the time of the complaint showed light wind from the ENE crossing the biosolids stockpile area and sludge drying pans at the site. The wind track also crossed the Natural Recovery Systems compost facility and this was also likely to have contributed to the odour detected downwind of their facility along Worsley road. A follow up check of odour was completed on the afternoon of the 17th June and no odour could be detected from the biosolids stockpile area, sludge drying pans or compost facility. The Plant is a likely source of the odour.

On 24 June 2009 a member of the public reported an odour in the vicinity of McMahrens Road around 2:20pm. A site visit showed the odour was still detectable. A check of plant process and operational records found no known issues. A wind track analysis at the time of the complaint showed light winds from ESE crossing the biosolids stockpile area and along the Patterson River. The Plant is a likely source of the odour.

Western Treatment Plant

There were two odour complaints received during the two quarters. Details are as follows:

A member of the Community Liaison Committee reported an odour in the vicinity of Sanctuary Close on 19 February 2009 at 10.15 pm and 20 February 2009 at 7.45 pm. The odour was reported via emails sent on 20 February and 23 February 2009. He notified EPA Victoria and the emails sent to Melbourne Water were each read the following day.

Investigations of wind speed and direction were undertaken and the resident's meteorological observations were confirmed. Site visits were not possible and the odours were likely to originate in the Plant. Future dosing of the Main Inlet Carrier is intended to address this source.

Transfer System

There were eight odour complaints received during the two quarters. Details are as follows:

On 20 January 2009 a member of the public reported an odour in the vicinity of an apartment complex at the corner of Palmer and Burnley Streets, Richmond. The caller advised us that he had noticed a sewage odour from his balcony at times for the past twelve months, mostly at night when he was using his balcony. The site was visited on both occasions and no odour was present at the time. Odour has now been reported twice in the area. It is likely that the odour is coming from the vent on RMD22 which is located directly across the intersection from the caller's apartment. Odour monitoring will be undertaken at this site in Feb/March 2009 to determine concentrations of gas from this vent stack. Data will be fed back into the corrosion and odour strategy for priority action.

On 29 January 2009 a member of the public reported observing an odour in the vicinity of Moreland Rd and Saltwater Place, Footscray on 15 January 2009. Follow up correspondence also indicated odour had been noticed in the vicinity of the vent stack near the river on Saltwater Place (NYM022). Odour monitoring was then organised for Feb/March 2009 with the results to be fed back into the revised odour and corrosion strategy.

On 13 February 2009 a member of the public reported an odour in the vicinity of North Melbourne to City West Water. City West Water investigated the site and determined it was a Melbourne Water asset (North Yarra Main manhole 39) and they believed the sealing plate was broken.

Melbourne Water's contractor attended the site and found that the sealing plates were thin due to corrosion and shifted allowing the sealing grit & sands to fall into the manhole, subsequently allowing gases to escape. Lids were repositioned and sealed again with sands. The contractor recommended to Melbourne Water that the manhole cover be replaced with a standard gatic lid. This manhole had been inspected as part of the routine CCTV program in October 2008 and the sealing plates were sealed. There was no odour from this manhole at the time of the inspection.

On 4 February 2009 a member of the public reported an odour in the vicinity of a factory in Malcolm St, Braeside to South East Water who passed it onto Melbourne Water on 25 February 2009. The odour was possibly being emitted from a vent stack at MRD005 on the Mordialloc Main Sewer Manhole 5. The odour was reported as persisting for a while.

The site was visited the next day and contact was made with the complainant. Given the proximity of the vent and the time of day and weather conditions, it is likely the source of the odour is the vent stack on MRD005 functioning as designed. This complaint was discussed with Network Planning and Civil Assets to investigate appropriate actions that may be undertaken to address this issue. The revised Odour and Corrosion Strategy will include deployment of mini odour treatment facilities at sites that have a history of odour complaints or that show high odour levels through targeted monitoring.

On 24 March 2009 a member of the public reported an odour in the vicinity of Brooklyn Pumping Station via EPA Victoria. An analysis of the wind direction and H₂S logging in the Brooklyn Pumping Station vent stack confirmed that Brooklyn Pumping Station was the most likely source of the odour. Odour sampling was scheduled to be undertaken in the vent stack in March/April and results will be used to determine possible treatment options.

On 20 April 2009 a member of the public reported an odour in the vicinity of Poolman Street, Port Melbourne through the call centre. Melbourne Water's contractor attended site and found that the sealing plates on two manholes were thin due to corrosion and had shifted allowing the sealing grit & sands to fall into the manhole, subsequently allowing gases to escape. There are vents on these two manholes but the sealing plates were considered the most likely source of the odour.

Lids were repositioned and sealed again with sands. Thiess have recommended to Civil Assets that the manhole cover be replaced with a standard gatic lid. This manhole had been inspected as part of the routine CCTV program in February 2009 and the sealing plates were sealed. There was no odour from this manhole at the time of the inspection.

On 29 May 2009 a member of the public reported an odour in the vicinity of 242 The Boulevarde, Ivanhoe through the Call Centre. A vent stack on the North Yarra Main close to the property is believed to be the cause of the odour. A routine inspection in this area had previously identified odour and the vent is included in the odour monitoring program. Preliminary results indicate that while there is some odour emanating from the vent, the hydrogen sulphide readings are relatively low (average 1.5 ppm with a maximum of 3 ppm).

No further action is proposed at this stage. The Complainant has been asked to contact Melbourne Water if odour reoccurs.

On 23 June 2009 a member of the Westgate Bridge Strengthening Alliance reported odour from the vent stack located at Manhole 2 on the Hobson's Bay Main. This manhole covers the Eastern Drop Structure where flows fall into the section of sewer main under the Yarra River. The Alliance has chosen to locate their site sheds in proximity to the vent.

The site is a known odour problem and previous complaints resulted in operational changes to the ventilation fan whereby it is now only operated overnight from 7 PM to 7 AM. The reduced ventilation is a major contributing factor to the corrosion of this manhole. Two capital projects are being implemented to address this, rehabilitation of the manhole and drop structure arrangement and then an Air Treatment Facility is proposed for residual odour.

Discussions on the potential for a temporary solution to odour at this site are continuing.

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 met its flow requirements.

Melbourne Water Passing Flow Compliance Quarter Three 2008/2009

Site	Passing Flow (ML/d)	Actual Min. Flow (ML/d)	Compliance	Comments
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	11	√	MWC agreement with former SR&WSC
Thomson Res. To Thomson R: • Below Dam • At Narrows • At Coopers Ck	75 80 155	92 95 155	√ √ √	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	10 116* 153	√ √ √	- 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 (Flows from weirs are either the table's passing flow or natural inflows if less than this)				
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

* Yering George Pumps stopped. Tributaries turned out and releasing extra water from O'Shannassy and Maroondah dams for minimum river compliance.

** Silver Weir Dry. Silver Creek Weir stream flow was less than 4 ML/d during this period

***Wallaby Creek Weir stream flow was less than 2 ML/d during this period.

**Melbourne Water Passing Flow Compliance
Quarter Four 2008/2009**

Site	Passing Flow (ML/d)	Actual Min. Flow (ML/d)	Compliance	Comments
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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 a "V" notch, outlet pond.
Thomson Res. To Thomson R: • Below Dam • At Narrows • At Coopers Ck	25 80 155	90 95 150*	√ √ √	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
Neerim South Gauging Station (Tarago Res to Tarago R At Scalp Ck)	5	5	√	Passing Flow compliance is the lesser of 5ML/day and the flow entering the reservoir
Upper Yarra Res. to Yarra R: • Upper Yarra Dam • At Yering Gorge Pump Stn • At Chandler Highway	10 200/150 150	10 125** 154	√ √ √	- 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 (Flows from weirs are either the table's passing flow or natural inflows if less than this)

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

* The 7 day rolling average was above operating tolerances for April 2009.

** Yering George Pumps stopped. Tributaries turned out and releasing extra water from O'Shannassy and Maroondah dams or minimum river compliance.

*** **Silver Weir Dry.** Silver Creek Weir stream flow was less than 4 ML/d during this period

**** Wallaby Creek Weir stream flow was less than 2 ML/d during this period.

New Environmental Entitlement

Site	Passing Flow (ML/d)	Actual Min. Flow (ML/d)	Compliance	Comments
Drouin West Gauging Station	6	24	√	The Environmental Entitlement is the lesser of 12 ML/day and the natural flow at the Drouin West Gauging Station. Temporarily reduced Environmental Flow Requirement is the lesser of 6ML/day and the natural flow at the Drouin West gauging station.
Tarago River at Tarago Weir	<p>May to Oct: 20ML/day or 50% of inflow (dry)</p> <p>Nov to Apr: 10ML/day or 50% of inflow (dry)</p>	<p>NA</p> <p>NA</p>	√	<p>May to October (inclusive):</p> <ul style="list-style-type: none"> - 20ML/day, if the inflow to Tarago Weir is equal to or greater than 40ML/day, or - 50% of inflow if the inflow to Tarago Weir is less than 40ML/day <p>November to April (inclusive):</p> <ul style="list-style-type: none"> - 10ML/day, if the inflow to Tarago Weir is equal to or greater than 20ML/day, or - 50% of inflow if the inflow to Tarago Weir is less than 20ML/day.
Bunyip River at Bunyip Weir	<p>May to Oct: 8ML/day or 50% of inflow (dry)</p> <p>Nov to Apr: 6ML/day or 50% inflow (dry)</p>	<p>NA</p> <p>NA</p>	√	<p>May to October (inclusive):</p> <ul style="list-style-type: none"> - 8ML/day, if the inflow to Bunyip Weir is equal to or greater than 16ML/day, or - 50% of inflow if the inflow to Bunyip Weir is less than 16ML/day <p>November to April (inclusive):</p> <ul style="list-style-type: none"> - all inflow to Bunyip Weir above 6ML/day if inflow to Bunyip Weir is equal to or greater than 12ML/day, or - 50% of inflow if Bunyip inflow to Weir is less than 12ML/day.

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
	Compliance achieved	
	Compliance non achieved	

Trade Waste Agreements

Trade Waste Reporting Results for Quarter 3 and Quarter 4 2008/2009

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, at each risk level.

	CWW	YVW	SEW		CWW	YVW	SEW
January				April			
Insignificant	54	18	23	Insignificant	60	16	28
Moderate	0	0	0	Moderate	0	0	0
High	0	0	0	High	0	0	0
February				May			
Insignificant	67	17	14	Insignificant	68	15	23
Moderate	0	0	0	Moderate	0	0	0
High	0	0	0	High	0	0	0
March				June			
Insignificant	58	14	20	Insignificant	71	22	18
Moderate	0	0	0	Moderate	0	0	0
High	0	0	0	High	0	0	0
Total	179	49	57		199	53	69

Table 1 - Risk level of non-compliant discharges as reported by retail water companies

The table above includes non-compliant discharges that were both resolved and unresolved during each month. The graph below summarises the number of non-compliant discharges at each risk level for the previous quarter, for all retail water companies.

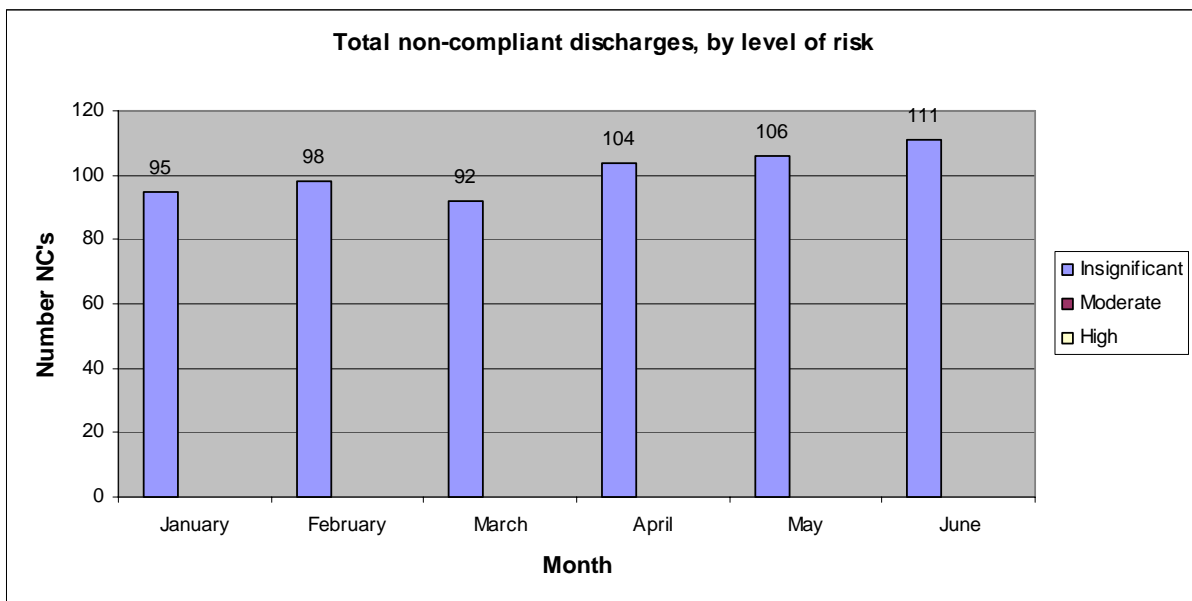


Figure 1- Total non-compliant discharges by risk level

Discussion of Trade Waste Reporting Results for Quarter 3 and Quarter 4 2008/2009 Financial Year**High Risk:**

There were no high risk non-compliances in Q3 and Q4 2008/2009.

High risk non-compliances could strongly affect the OH&S of sewer workers, inhibit the treatment plant process affecting product compliance, significantly impact on 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 companies and Melbourne Water incident management response and debrief procedures to be followed.

Moderate Risk:

There were no moderate risk non-compliances in Q3 and Q4 2008/2009.

Moderate risk non-compliances could affect the OH&S 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 companies 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:

The number of insignificant risk non-compliances ranged from 92 to 111 per month over the six month period.

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 actions 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. In 2008/09 Melbourne Water recycled 60,466 ML or 21.2 % of effluent.

Eastern Treatment Plant

During the two quarters approximately 1,102 ML of recycled water was supplied to customers along the South East Outfall and 3,888 ML was supplied to the Eastern Irrigation Scheme. In addition to this approximately 6,805 ML of water was used onsite at the Eastern Treatment Plant.

During 2008/09 a total of 22,262 ML of water was recycled from Eastern Treatment Plant.

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

Western Treatment Plant

During the two quarters approximately 7407 ML of recycled water was supplied to Southern Rural Water for the Werribee Irrigation District, and 149 ML was supplied to the Werribee Tourist Precinct, incorporating both the Werribee Park Golf Club and the State Equestrian Centre. In addition to this, approximately 13,796 ML of recycled water was used onsite at the Western Treatment Plant. In addition 239 ML of recycled water was used at Mc Killop College, by Drought Relief Tankers and at the Werribee Technology Precinct.

During 2008/09 a total of 38,204 ML of water was recycled from 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 EPA Victoria discharge licence has an influent limit of median total dissolved solids to not exceed 1000 mg/L from 1 January 2009. Annual compliance was achieved for total dissolved solids for 2008/09 with quarterly results of 1000, 1000, 1000 and 980 mg/L.

Influent limit of 1000 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 0 % at WTP by 2012/13 and 95,000 cubic meters at Eastern Treatment Plant as a result of the 2006 Biosolids Beneficial Use Strategy and the 2009 Water Plan.

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 is being implemented. At Western Treatment Plant, the strategy recommends developing a business case for the potential use of biosolids as a fuel at an external facility. An update on progress against the Strategy was provided to the Board in August 2008. A review of the Strategy is due by the end of 2009.

Eastern Treatment Plant

During the two quarters 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 in the Vic Roads Peninsula Link project. Melbourne Water worked with EPA Victoria to develop guidelines for using biosolids in this application, with EPA recently finalizing and releasing the guidelines for “use of Biosolids as Geotechnical Fill”. These guidelines will allow biosolids structural fill projects like the Peninsula Link project to proceed under an approved Environment Improvement Plan. Melbourne Water has received confirmation from EPA Victoria that the project is consistent with regulatory obligations and has gained in principle support from EPA to proceed in accordance with the newly released guidelines for use of biosolids as a geotechnical fill.

Western Treatment Plant

During the two quarters 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 an external commercial enterprise was the preferred option.

During 2008/09 Melbourne Water began a biosolids energy recovery trial at Western Treatment Plant in collaboration with a private sector business and using Federal Government funding assistance.

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 objectives 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 objectives where relevant as part of the Regional River Health Strategy. Melbourne Water has adopted a long-term target to achieve good waterway health in all natural waterways by 2025.

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.

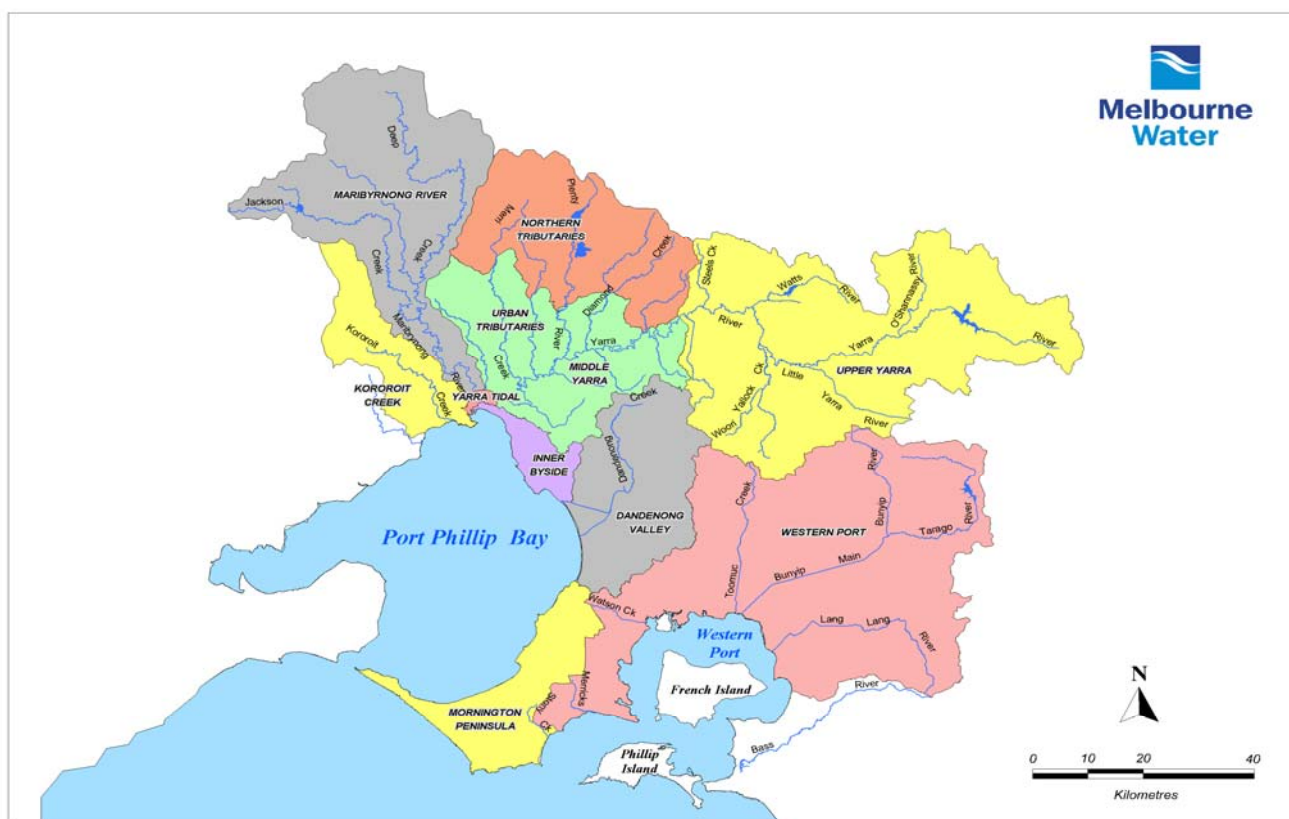
Waterway monitoring data from the last twelve months showed that waterways within Greater Melbourne performed well for pH, with most catchments complying with their SEPP objectives. Catchments vary from zero to full compliance for turbidity. All waterways perform poorly for dissolved oxygen and nutrient levels with most catchments having no sites that comply with oxygen and/or nitrogen objectives.

A review of Melbourne Water's waterway monitoring program has been completed and this status report will be revised for 2009/10 to provide improved reporting on river health in Melbourne Water's area.

Waterway Water Quality

Quarters Three and Four, 2008/2009

The table below shows the environmental quality 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

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

Waters of Victoria									
Waterway	MELWAYS	EC 75%	DO% 25%	pH 25 %	pH 75%	E Coli Geo mean	Turb 75%	TP 75%	TN 75%
Cleared Hills & Coastal Plains Werribee/Maribyrnong		1500	85	6.5	8.3	150	10	0.045	0.6
Arundel Creek	14K1	3075	55	7.6	8.0	39	11	0.047	0.5
Deep Creek	598G12	1800	64	7.7	8.5	23	12	0.068	1.2
Deep Creek	177A6	3725	54	7.9	8.2	77	29	0.092	1.4
Jacksons Creek	620F7	1100	55	7.6	7.8	39	15	0.039	0.9
Jacksons Creek	382G5	1125	50	7.5	7.7	63	51	0.061	1.0
Jacksons Creek	3C3	1200	51	7.8	8.0	146	39	0.225	1.6
Maribyrnong River	14H2	1825	67	7.7	8.1	38	14	0.051	1.8
Maribyrnong River	14H8	1900	56	7.5	7.7	64	15	0.057	1.5
Maribyrnong River	27B8	2400	59	7.7	8.1	85	19	0.071	1.2
Maribyrnong River	28D11	46000	64	7.6	7.8	43	11	0.155	1.1
Riddells Creek	620E4	1200	54	7.5	7.8	35	9	0.022	0.9
Steele Creek	27J2	1225	64	7.7	8.1	339	19	0.072	0.9
Stony Creek	41J11	508	74	7.7	8.5	484	23	0.518	2.6
Taylor's Creek	14G8	3200	65	7.6	7.7	169	23	0.087	1.1
Cherry MD	54E5	1035	29	7.0	7.6	75	16	0.905	2.1
Kororoit Creek	25D7	1425	39	7.4	7.7	141	11	0.081	0.9
Kororoit Creek	55C8	23750	79	7.8	8.3	159	22	0.243	1.3
Laverton Creek	53J10	755	48	7.1	7.8	272	36	0.198	1.0
Lerderderg River	617G8	265	50	7.6	8.2	36	19	0.043	0.7
Lerderderg River	334H9	780	47	7.1	7.9	25	22	0.033	0.6
Little River	730J7	8400	64	8.0	8.4	25	12	0.035	1.0
Lollypop Creek	205A8	313	60	7.8	8.2	227	64	0.153	1.2
Skeleton Creek	53B12	4425	43	7.2	7.5	354	16	0.160	0.9
Yangardook Creek	343A5	180	42	7.2	7.7	77	31	0.120	1.1
Werribee River	VICR294H3	903	52	7.6	7.8	19	16	0.044	1.2
Werribee River	333G8	3000	56	7.5	7.9	98	19	0.034	0.6
Werribee River	227B10	3400	57	7.7	8.0	193	20	0.069	0.8
Werribee River	205F2	3000	65	7.9	8.2	59	14	0.081	0.8

Waters of Victoria									
Waterway	MELWAYS	EC 75%	DO% 25%	pH 25 %	pH 75%	E Coli Geo mean	Turb 75%	TP 75%	TN 75%
Cleared Hills & Coastal Plains Westernport		500	85	6.4	7.7	150	10	0.045	0.6
Blind Creek	72D3	843	41	6.9	7.2	511	25	0.096	2.4
Boggy Creek	99K2	1475	56	7.5	8.6	492	51	0.298	2.4
Corhanwarrabul Creek	81C2	538	61	7.0	7.4	349	27	0.100	1.4
Croydon MD	64D2	765	32	6.8	7.1	482	21	0.155	3.5
Dandenong Creek	63D5	513	37	7.1	7.4	420	24	0.095	1.6
Dandenong Creek	81G9	505	73	7.0	7.5	332	35	0.099	1.5
Dandenong Creek	94H7	933	69	7.1	7.6	290	61	0.095	1.4
Elster Creek	67F5	913	72	7.7	8.1	1491	26	0.143	2.8
Eumemmerring Creek	94H10	830	63	7.0	7.5	389	30	0.140	1.2
Ferny Creek	73C8	368	60	7.0	7.5	277	30	0.091	1.1
Hallam Main Drain	95K4	1025	54	6.9	7.4	182	29	0.091	1.2
Heatherton Drain	87H12	383	73	7.6	8.1	624	20	0.233	1.5
Kananook Creek	102C2	52750	55	7.4	7.8	187	10	0.153	0.7
Mile Creek	86J9	1950	76	7.2	7.8	571	11	0.083	1.7
Monbulk Creek	73D9	345	66	7.2	7.4	343	38	0.083	1.3
Mordialloc Creek	92J2	6325	47	7.2	7.7	194	38	0.190	1.6
Patterson River	97J3	580	60	7.6	8.3	76	57	0.138	1.6
Balcombe Creek	145C11	2000	51	7.3	7.6	284	15	0.145	2.0
Chinamans Creek	169J3	1325	30	7.2	7.5	390	11	0.168	1.8
Dunns Creek	160C2	3500	67	7.5	7.7	288	10	0.086	0.8
Kackeraboite Creek	101H8	2500	66	7.4	7.6	585	10	0.069	1.3
Main Creek	260A9	2300	84	7.4	7.7	84	9	0.030	1.1
Sweetwater Creek	102A6	1850	78	7.4	7.7	794	18	0.068	1.3
Forest – A		100	90	6.4	7.7	150	5	0.025	0.5
Dandenong Creek	65K5	160	67	7.1	7.8	55	13	0.023	1.2

Waters of Western Port Bay & Catchment								
Waterway	MELWAYS	DO% Min	pH Min	pH Max	E Coli Geomean	Turb 50%	TP Max	TN Max
Lowlands & Phillip Island		80	6.5	9.0	200	15	0.05	0.6
Cardinia Creek	767C13	72	6.5	8.5	107	21	0.08	1.3
Deep Creek	767D13	30	6.8	7.7	124	58	1.80	7.2
Toomuc Creek	767D13	44	6.4	8.2	84	24	0.68	2.6
Warrangine Creek	164G1	41	6.3	8.3	273	22	0.15	16.0
Watsons Creek	149E1	18	6.2	8.2	443	14	6.80	255.4
Northern Hills		85	6.5	9.0	200	5	0.03	0.2
Bunyip River	742A7	57	6.4	7.5	75	16	0.06	1.6
Bunyip River	770A5	66	6.4	8.3	572	17	0.33	2.6
Cardinia Creek	210B7	55	6.3	7.8	109	7	0.03	0.8
Diamond Creek	741J11	21	6.1	7.9	144	12	0.13	2.2
Tarago River	770B5	8	6.9	8.4	447	10	0.23	2.0
Toomuc Creek	215K4	45	6.8	8.0	108	13	0.11	1.4
Upper Tarago River	VR 80G9	8	7.2	7.9	78	14	0.04	1.5
Peninsula		80	6.5	9.0	200	15	0.05	0.6
Merricks Creek	193C9	17	6.2	7.8	185	11	0.24	2.6
Olivers Creek	154K6	24	6.3	7.7	176	13	1.50	4.6
Stony Creek	256E8	39	6.1	7.9	305	5	0.43	2.7
South Eastern Rural		80	6.5	9.0	200	15	0.05	0.6
Ararat Creek	319J10	43	6.7	7.9	146	30	0.09	1.6
Bass River	825I10	6	6.9	8.2	77	13	0.20	5.4
Bass River	851A9	12	6.7	7.8	493	23	0.22	5.5
Bunyip Main Drain	769E10	69	6.7	8.5	402	17	0.09	1.3
Lang Lang River	798D9	14	7.0	8.1	353	18	0.51	4.8
Minnieburn Creek	798H9	32	6.4	8.1	189	11	0.24	3.5

Waters of the Yarra Catchment								
Waterway	MELWAYS	DO% Min	pH Min	pH Max	E Coli Geomean	Turb 50%	TP Max	TN Max
Rural Eastern Waters		80	6.0	8.5	200	15	0.1	0.6
Arthurs Creek	185K4	14	6.6	8.3	107	24	0.2	2.4
Cockatoo Creek	310E1	30	6.6	8.2	30	15	0.0	2.2
Coranderrk Creek	278C10	52	6.5	7.5	82	3	0.0	0.8
Hoddles Creek	287F6	25	6.3	8.2	263	16	0.0	0.8
Little Yarra River	288C6	29	6.4	8.6	311	11	0.0	0.9
McCrae Creek	305K10	26	6.6	8.2	374	22	0.0	0.9
New Chum Creek	270C6	49	6.5	7.8	77	11	0.0	3.0
Shepherd Creek	308F11	26	6.6	8.3	304	18	0.0	1.1
Stringybark Creek	275A9	33	6.6	7.8	55	10	0.0	1.0
Wandin Yallock Creek	285G4	31	6.5	8.2	48	11	0.1	2.5
Watsons Creek	24F1	34	7.0	7.8	71	9	0.1	2.3
Woori Yallock Creek	305K8	25	6.6	8.2	122	16	0.0	1.5
Woori Yallock Creek	286A10	33	6.6	8.6	163	12	0.0	1.4
Watts River	650H10	47	6.6	8.1	246	9	2.2	1.3
Yarra River	289E4	29	6.5	8.3	133	5	0.0	0.7
Yarra River	287H6	29	6.2	8.8	229	6	0.0	0.8
Yarra River	277G7	44	6.3	7.5	158	10	0.0	1.0
Yarra River	274E8	47	6.9	8.2	176	14	0.1	1.0
Rural Western Waters		60	6.0	8.5	200	25	0.1	0.6
Bruces Creek	246G8	13	6.9	9.1	99	25	0.4	2.2
Merri Creek	387H2	22	7.1	8.5	53	15	0.1	2.0
Plenty River	183K11	27	6.8	8.0	63	13	0.1	1.8
Upper Estuary		60	6.5	8.5	200	30		
Yarra River	43J9	53	6.8	8.4	236	6	0.1	1.2
Urban Waters		60	6.0	8.5	200	25	0.1	1.0
Andersons Creek	23B12	41	7.0	7.7	347	17	0.3	3.7
Brushy Creek	279B9	49	6.9	7.6	641	24	0.4	10.5
Darebin Creek	31E11	35	6.8	8.6	429	7	0.1	3.3
Diamond Creek	21H9	38	7.1	7.8	397	37	0.3	7.9
Edgars Creek	18A10	56	6.9	8.5	1170	3	0.1	1.2
Gardiners Creek	60J10	60	7.0	10.0	544	12	0.2	2.5
Gardiners Creek	59C2	49	6.6	8.5	862	8	0.1	2.3
Jumping Creek	24A11	33	6.8	8.0	146	9	0.2	2.3
Koonung Creek	32D10	32	7.1	7.6	1033	16	0.3	2.5
Merri Creek	2D C4	38	6.8	8.9	206	5	0.2	2.0
Moonee Ponds Creek	6D8	44	7.2	8.6	241	14	0.2	3.3
Moonee Ponds Creek	43B1	38	7.1	8.8	740	8	0.2	3.9
Mullum Mullum Creek	34F3	29	7.0	8.0	385	31	0.4	3.3
Olinda Creek	38H10	21	6.6	8.1	358	13	0.1	2.2
Olinda Creek	280J1	31	6.5	7.6	342	12	0.2	3.5
Plenty River	20K12	30	7.0	7.8	336	27	0.2	2.2
Ruffey Creek	33D4	66	7.1	7.9	532	13	0.2	2.9
Scotchman Creek	69D1	33	6.9	8.2	291	12	0.1	2.3

Yarra River	23F11	57	7.0	8.3	79	13	0.1	1.7
Yarra River	45B1	31	6.7	7.8	178	27	0.1	2.0
Parks and Forests		<i>85</i>	<i>6.5</i>	<i>8.5</i>	<i>200</i>	<i>5</i>	<i>0.0</i>	<i>0.2</i>
Big Pats Creek	291A11	29	6.6	8.6	82	7	0.0	0.7
McMahons Creek	686G2	30	6.6	8.3	70	6	0.0	0.6
O'Shannassy River	686C3	31	6.5	8.4	19	4	0.0	1.4
Starvation Creek	292G1	29	6.5	8.6	40	7	0.0	0.8

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.

From January to June 2009, a total of 784 alert-level exceedances were detected, or about 5 % of the total number of water quality measurements.

This compares with 738 exceedances reported for the same time last year. Exceedances were most commonly reported for dissolved oxygen, nutrients and Zinc. There were over 30 exceedances recorded in Watsons Creek at Dandenong-Hastings Road – Somerville where market gardens are the likely source of pollution. Other sites with high exceedances were Wylies Drain at Baxter-Tooradin Rd, Devon Meadows, Warrangine Creek downstream of Frankston-Flinders Road and Olivers Creek at Barclays Crescent, Hastings.

The collection of this data and the reporting of Alert Levels will change following the review of waterway monitoring and this section will change following discussions with EPA Victoria on the need for this information.

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.

NGERS reporting

2008/09 is the first year Melbourne Water is required to report under the National Greenhouse and Energy Reporting System. Previously the Greenhouse Challenge Plus process was used to guide reporting. The NGERS process is a statutory process and Melbourne Water will now use the NGERS Determination to estimate and report on emissions and energy.

The Determination's estimation methods are significantly different to the Greenhouse Challenge Plus and Melbourne Water's emissions will increase using it. Melbourne Water is actively involved through WSAA in working with the Commonwealth Government to establish estimation methods that more accurately reflect our treatment processes. Success on this has not yet been achieved and Melbourne Water, through WSAA, will continue to discuss this with the Department of Climate Change.

Melbourne Water's emissions performance uses 2000/01 as a baseline year. Emissions previously estimated for 2000/01 have been changed using the NGERS determination to measure and report consistently. An assurance process is underway to check Melbourne Water has applied the NGERS Determination methods appropriately and outcomes from this may affect these reported outcomes.

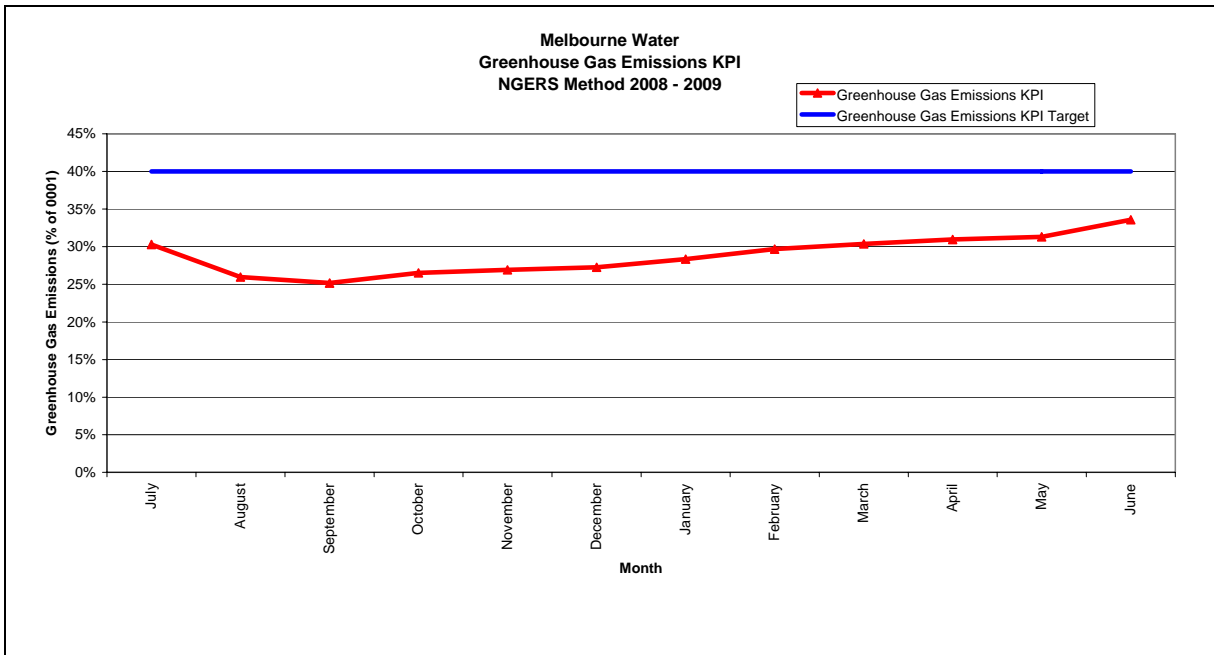
Changes to emissions are related to:

- Different estimations methods prescribed for sewage treatment
- Inclusion of capital works (Alliance Program in, Major Project Alliances not in)
- Exclusion of agricultural activities
- Exclusion of estimated sinks from Melbourne Water plantings

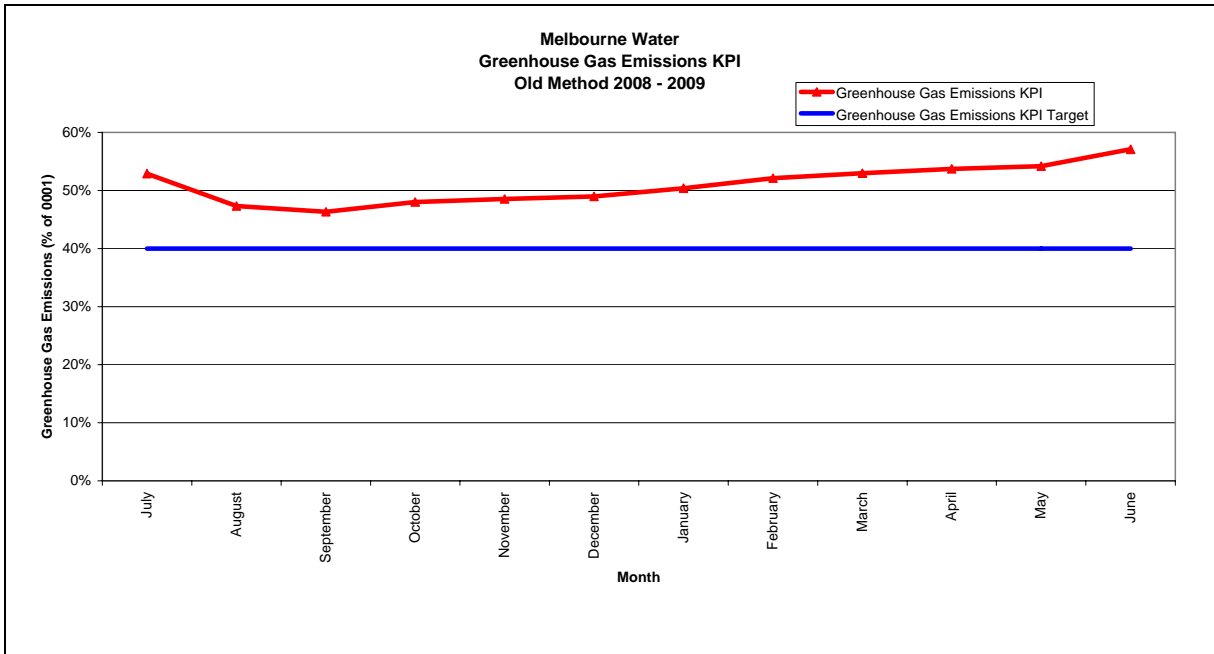
It is possible that the outcomes reported in this section will change as more appropriate estimations methods are allowed and estimates of Melbourne Water's energy usage and emissions are finalised.

Greenhouse Emissions KPI

$$= (\text{Total Emissions 2000/01} - \text{Total Emissions 2008/09}) / \text{Total Emissions 2000/01}$$

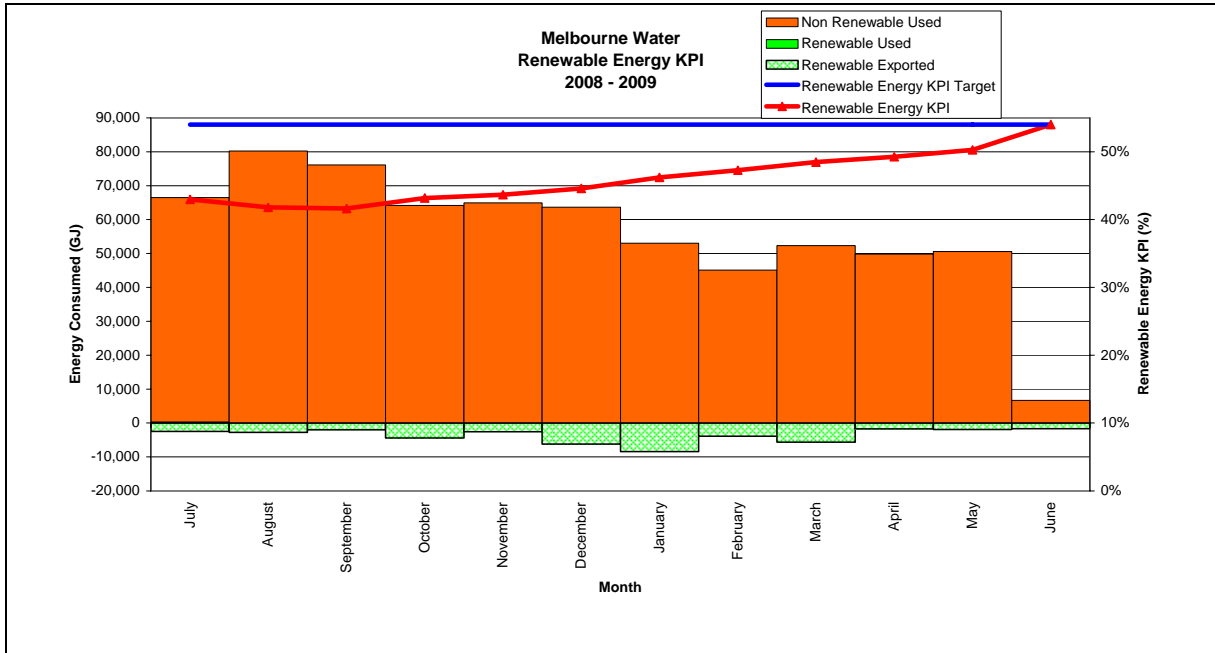


The chart below shows Melbourne Water’s emissions reduction performance calculated according to the old Greenhouse Challenge Plus process.



Renewable Energy KPI

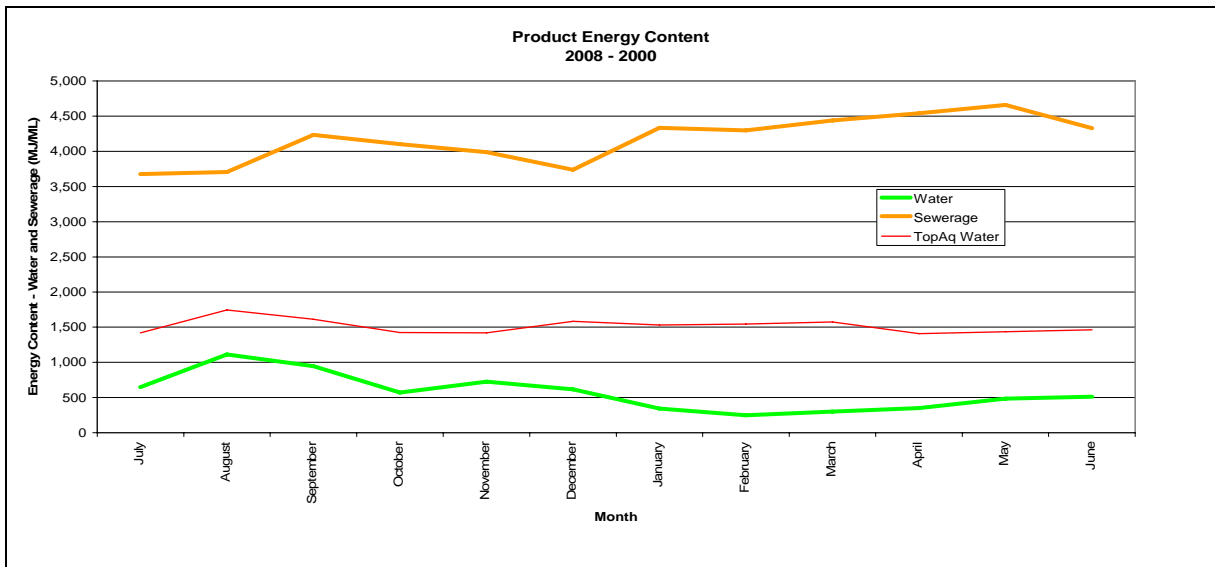
$$= \text{Renewable Energy Produced or Used} / \text{Total Energy used by Melbourne Water}$$



Achievement of the Renewable Energy KPI was enabled by the purchase and surrendering of the appropriate number of Renewable Energy Certificates and this is accounted for in June 2009. This is the reason the Non Renewable Energy Used bar is short for this month.

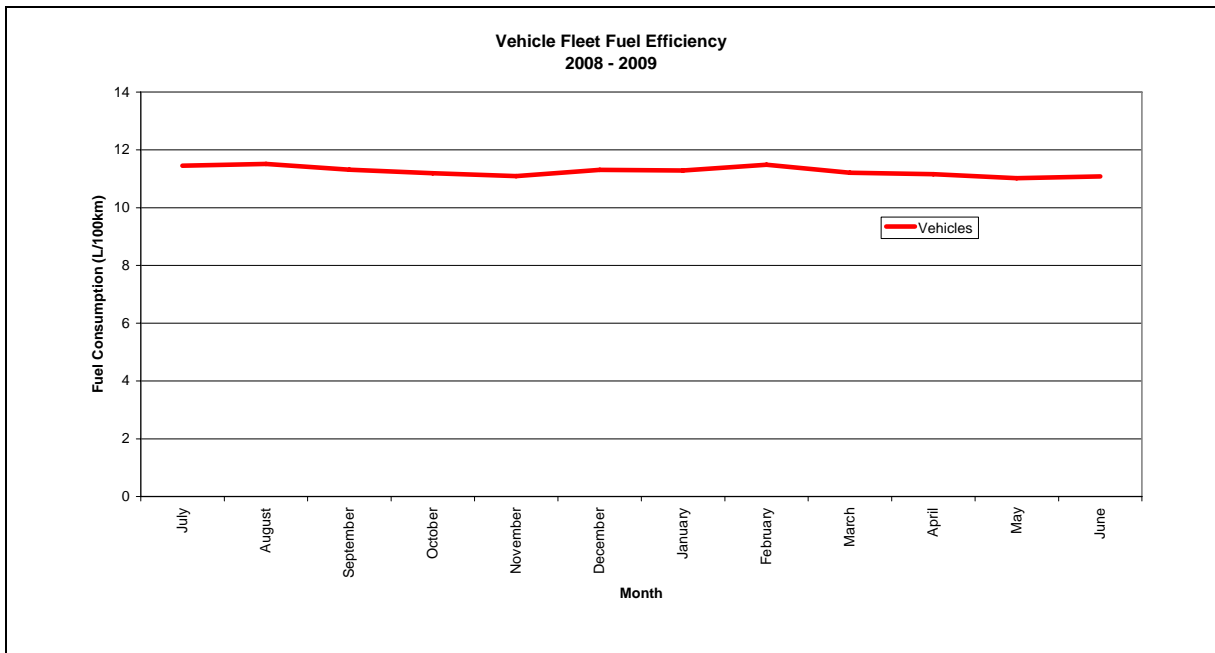
Energy content

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. Data includes actual energy used from generation, purchased fuels and imported grid electricity for each product. It does not include embedded energy (water head or calorific value of biosolids).



Vehicle fleet efficiency

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



Catchment Profile - Bushfire Recovery

The 2009 fires affected 900kms of Melbourne Water waterways. Prior to the fires, 64% were in good or excellent condition with the remaining 36% of waterways in moderate or poor condition based on the Index of Stream Condition.

The objectives of our fire recovery program include managing key natural values, such as aquatic fauna, in stream and riparian habitat in fire affected waterways and to help communities living along our waterways by supporting on ground riparian recovery works and protecting public and private assets from the impacts of flooding and stream erosion where appropriate.

Immediately following the fires Melbourne Water established a Strategic Monitoring Program to improve understand of the natural recovery response of our waterways and to determine on ground recovery actions. The Program includes water quality monitoring at 43 sites within and downstream of the fire affected catchments, aquatic fauna surveys at 38 sites for fish, platypus and macro-invertebrates, and visual monitoring of changes in stream morphology and riparian vegetation recovery.

Data collected from the Program has informed the actions required to achieve our recovery objectives with the following outcomes:

- Monitoring of water quality following rainfall runoff from the fire-affected areas of the Upper Yarra River catchment indicates no lasting impacts on oxygen or nutrient levels recorded in the Yarra River main stem so far.
- Key findings from the post-bushfire fish survey are that waterways most stressed by the bushfires were mainly those already drought stressed and a relatively high diversity of fish were recorded in most of the fire affected streams that were in good condition prior to the bushfires. Platypus surveys undertaken since the bushfires have reported platypus in some fire affected waterways such as Watts River and Tarago River.

On ground works and support completed to date include:

- Installing over 400 sediment fences within Melbourne's water supply catchments to improve water quality
- Protecting waterway riparian zones by supporting over 70 private landholders to undertake stock exclusion fencing, with follow up weed control and revegetation if necessary
- Identifying and managing sediment transportation and storage mechanisms in waterways, including de-silting the Bunyip Weir
- Controlling weed species threats to waterways by working with public and private landholders to determine 'land tenure blind' weed control programs to be implemented closer to spring 2009
- Removing in stream debris build up impacting on hydraulic capacity of major built infrastructure (bridges) following rainfall events
- Providing waterway management advice and support to over 115 fire affected properties

In the future, our fire recovery program will continue to focus on utilising our monitoring program to inform on ground actions and work with the communities and agencies to

collaboratively manage the impacts of fire on our natural values, such as changes in riparian vegetation resulting in increased weed invasion.

Appendices

Appendix One: Guide to Terms

Parameter	Units	Explanation
BOD <i>Biochemical Oxygen Demand</i>	mg/L*	A measure of the oxygen depleting potential of waste - usually measured over a five day period.
CBOD <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.
SS <i>Suspended Solids</i>	mg/L*	A gravimetric measure of undissolved matter, when retained on filter.
Amm <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.
Surf <i>Anionic Surfactants</i>	mg/L*	Surface active agents, associated with detergents
pH	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.
TRC <i>Total Residual Chlorine</i>	mg/L*	A measure of the remaining chlorine associated with the disinfection of effluent.
D.O. <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.
Metals	mg/L* or µg/L#	Are an indication of contamination. Metals tested include lead, cadmium, chromium, copper, zinc, nickel and mercury.
E. coli <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.
PAH's <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.
Total P or TP <i>Total Phosphorus</i>	mg/L*	Measured as phosphate after acid digestion of total sample to convert all combinations of phosphorus to phosphate.
Phenols	µg/L#	Phenols are widely used in resins, disinfectants and industrial products. Trace residuals are resistant to decomposition.
Total N or TN Total Nitrogen	mg/L*	The total amount of nitrogen comprising organic nitrogen, ammonia, nitrate and nitrite
Turb Turbidity	NTU	Cloudiness caused by materials suspended in water
EC Electrical conductivity	µS/cm	A measure of the ability to conduct an electrical current and used as an indicator of salinity
Org N <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.

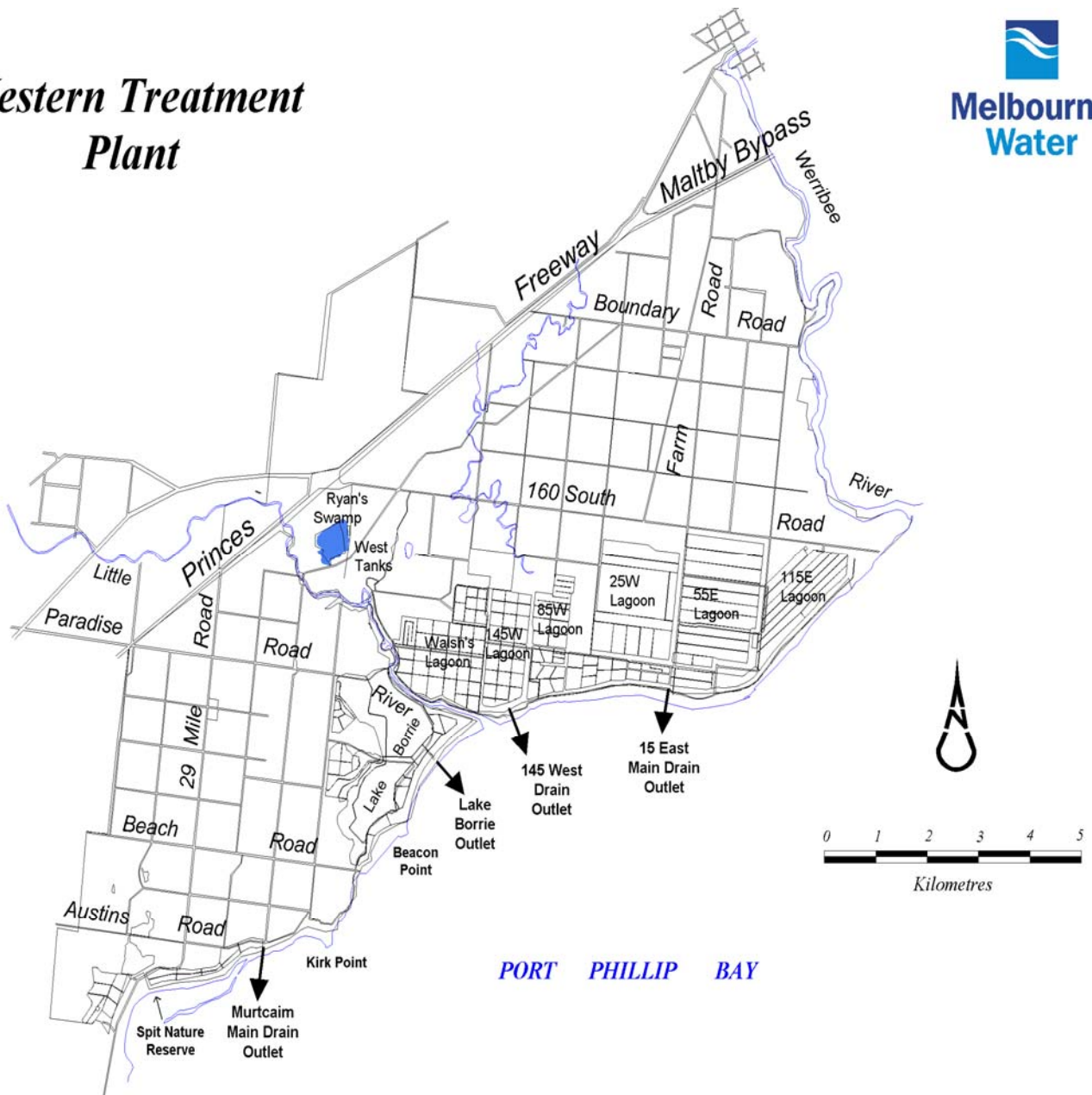
Stage 3:

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

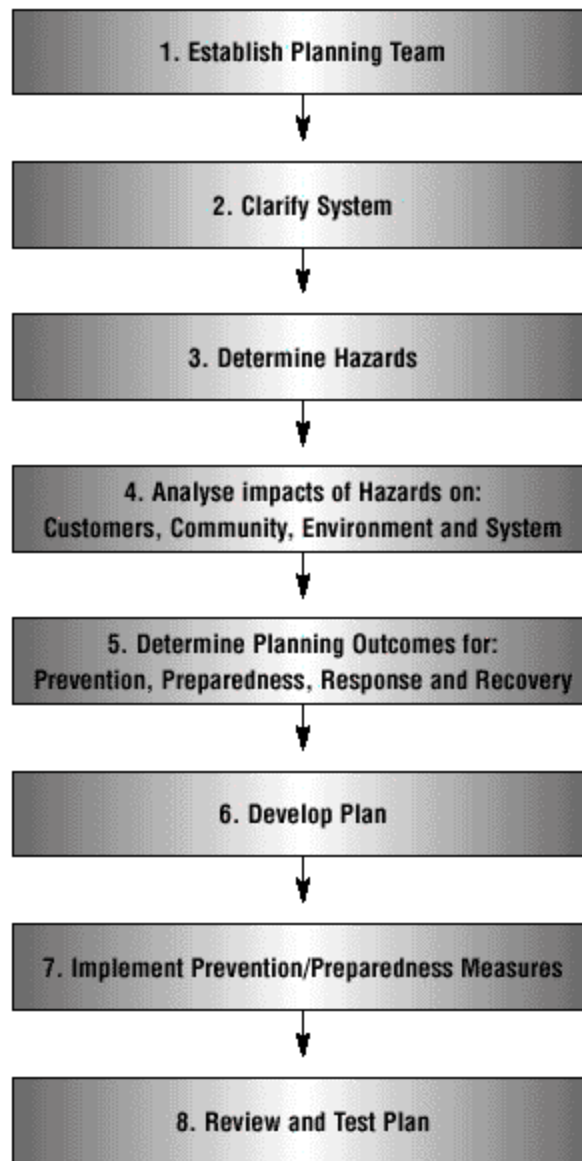
An *Incident* is any event or circumstance within our, or our customers operations that causes or is likely to cause:

- 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:

Category	Definition	Examples
Near Miss	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"> • Detection of a chlorine release of greater than two ppm, but less than 10 ppm at Winneke water treatment plant • Lost bush walkers in catchment area
Minor	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. <i>Note: If the media become involved, a Minor Incident becomes a Major Incident.</i>	<ul style="list-style-type: none"> • Minor motor vehicle accident • Short duration computer system malfunction • Minor flooding • Vandalism in catchment area • Employee or contractor/visitor injury • Intentional access to catchment area
Significant	A Significant Incident is one that can be managed at the site level but: <ul style="list-style-type: none"> • May need external resourcing over and above that which is usually used by the work team; and/or • The actual or potential impact on the Corporation, its customers, the community and the environment is more widespread. <i>Note: If the media become involved, a Significant Incident becomes a Major Incident.</i>	<ul style="list-style-type: none"> • Burst main causing some property damage • General sewer stoppage with contained spill • Moderate flooding • Prolonged SCADA outage • Minor industrial actions • Asset or system failure causing property damage • Intentional damage to catchment area
Major	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. <i>Note: All incidents which involve the media are to be considered as Major Incidents</i>	<ul style="list-style-type: none"> • Burst main in a large shopping centre • General sewer stoppage resulting in an uncontained spill • Major or widespread flooding • Bushfire in water supply catchments (natural or intentional) • Dam failure • Major industrial action • Asset or system failure causing major property damage
Emergency	An Emergency is an event which significantly impacts Melbourne Water's ability to continue its operations. It will affect Melbourne Water's: <ul style="list-style-type: none"> • Operability (acceptable level of service) • Image or reputation (community, media, political) • Liability (legal, financial) 	<ul style="list-style-type: none"> • Any of the above major incidents • Fatality or multiple injuries • Loss of stakeholder support • Corporate governance/compliance issue • Occurrence of any of the five key metropolitan water industry threats

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.