

WATER AND WASTEWATER PERFORMANCE REPORT AND STORAGE SUMMARY REPORT

June 2012

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1. Purpose of Paper

This report provides an overview of how the Corporation is performing against the Operating Licence, the current storage levels and information relevant to asset and operational performance.

2. Background

Hunter Water Corporation has an Operating Licence which has been set by IPART for a four year period. This licence specifies the regulatory obligations in controlling the water, wastewater and drainage systems and the standards of performance required to be met.

The report gives a clear impression of how the Corporation is performing against the licence standards by presenting monthly and year-to-date performance compared to the 2010/11 results.



3. System Performance

3.1. Summary of Operating and EPA Licence Performance




-  Tracking favourably
-  Tracking Unfavourably
-  Licence non-compliance

Table 1 - Water Quality & Licence Performance

Water Supplied	Current Month	Rolling 12 Months	Licence Target	Licence Trend
Quality				
Samples Tested	132			
Samples Passed	132			
Micro Compliance	100.0%	100.0%	> 98%	⌘
Chemical Compliance	100.0%	99.9%		⌘
Asset Performance	Current Month	Year to Date	Licence Target	Licence Trend
Water Continuity Standard				
Props experiencing an unplanned interruption > 5 hours	72	1855	< 10000	⌘
Props experiencing \geq 3 unplanned interruptions > 1 hr	49	1836	< 5000	⌘
Water Pressure Standard				
Individual props experiencing < 20m head for > 30mins	1170	1170		
Verified Complaints	1	1		
Total	1171	1171	< 4800	⌘
Sewage Overflow Standard				
Private properties experiencing a dry weather overflow	220	2799	< 5000	⌘
Private props experiencing \geq 3 dry weather overflows	1	14	< 45	⌘

Table 2 – Storage Status

	Total (end of month)	Var. from Last Month	Movement	Notes
Storage				
Chichester	100.0%	0.4%	Increase	
Grahamstown	96.9%	1.3%	Increase	
Tomago Sandbeds	100.0%	0.0%	No change	
Anna Bay Sandbeds	71.6%	2.2%	Increase	
Total	96.4%	1.0%	Increase	
Balickera Pumps				
Quantity Pumped (ML)	0	0.0	No change	
Days Run	0	0	No change	
Rainfall (mm)				
Chichester	112			
Upper Chichester	133.4			
Grahamstown	121.4			
Consumption				
Total (ML)	4,785.3	512.5	Decrease	
Daily Average (ML)	159.5	11.4	Decrease	

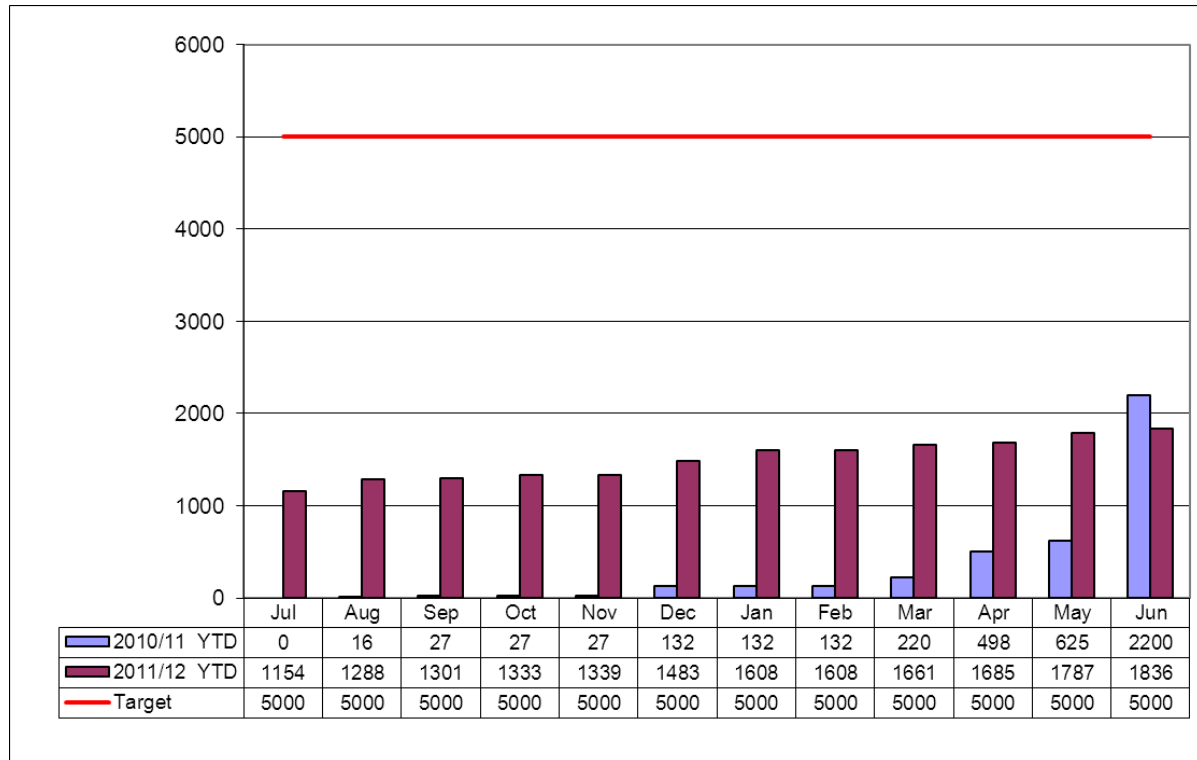


3.2. Trend Performance Detailed Report

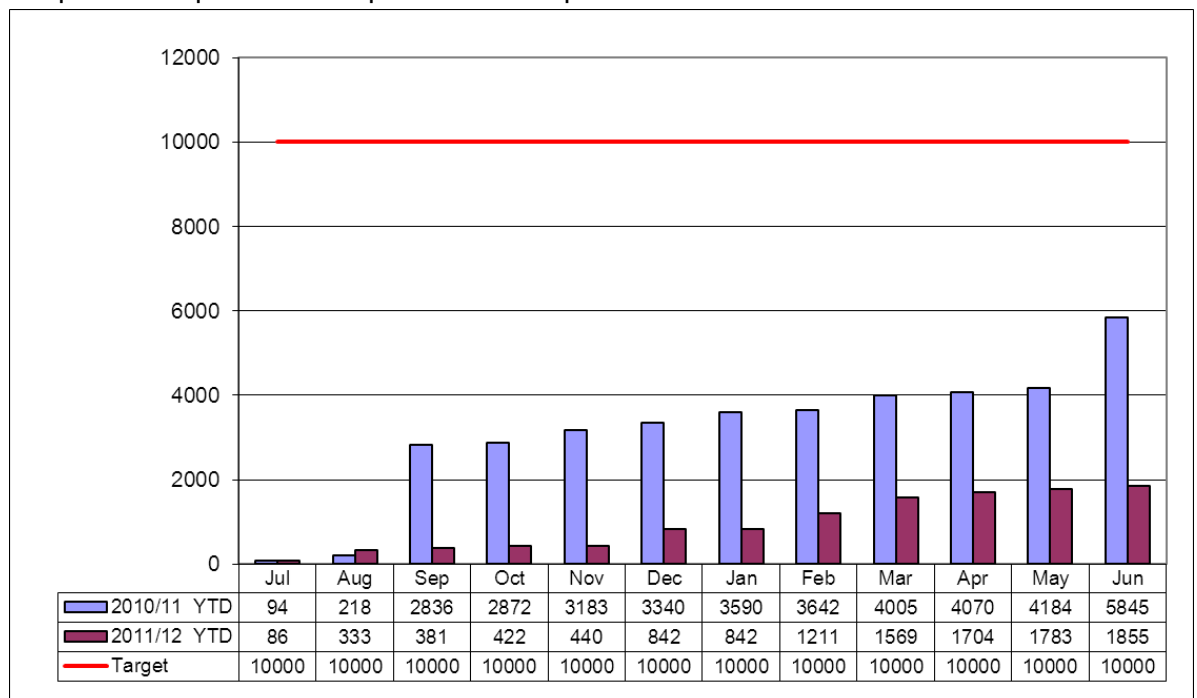
The following graphs present the current performance against the Licence Standards. The three standards are monitored with five parameters each with its own guideline.

Graph 1 - Props experiencing 3 or more unplanned interruptions greater than 1 hour

**Water
Continuity
Standard**

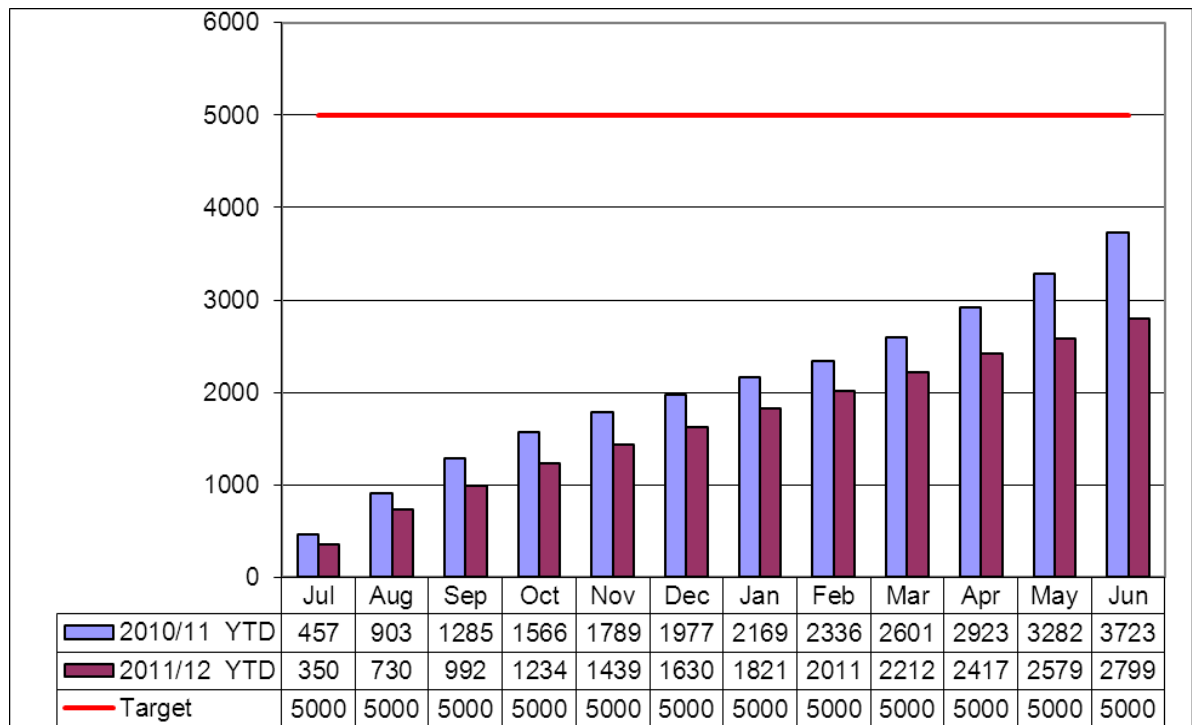


Graph 2 - Props with an unplanned interruption >5 hours

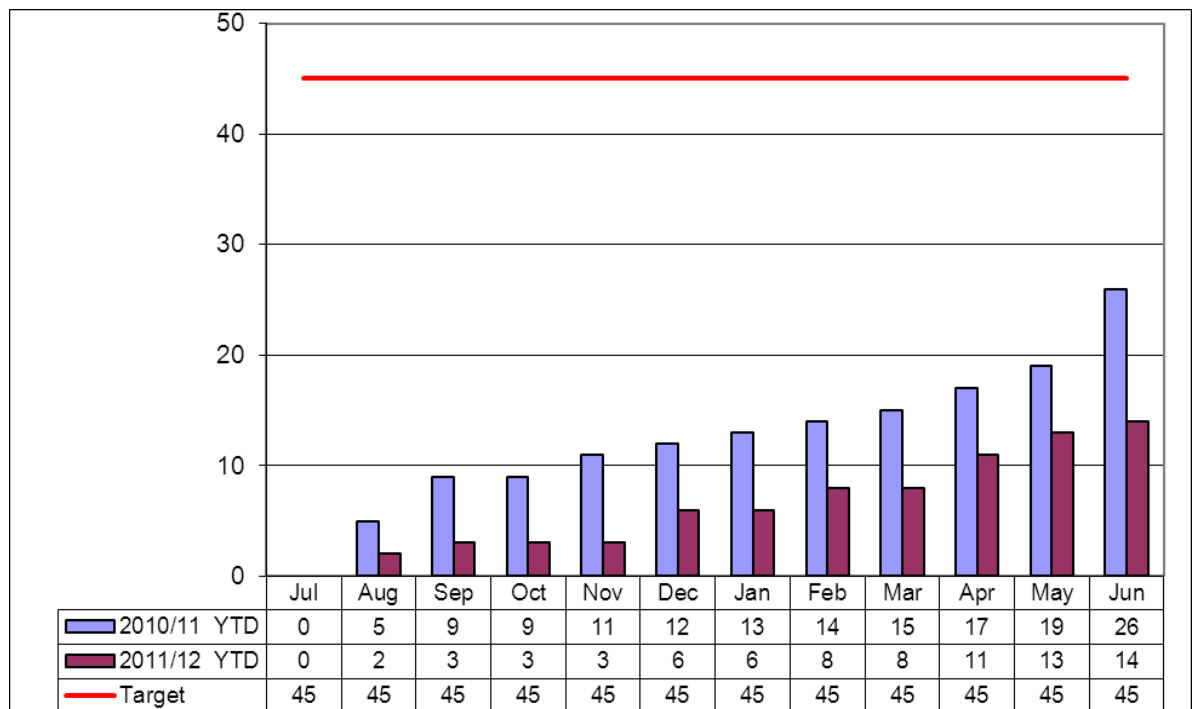


Graph 3 - Private properties experiencing a dry weather overflow

Sewer
Overflow
Standard



Graph 4 - Private properties experiencing >3 dry weather overflows



Graph 5 - Properties experiencing <20m head >30mins

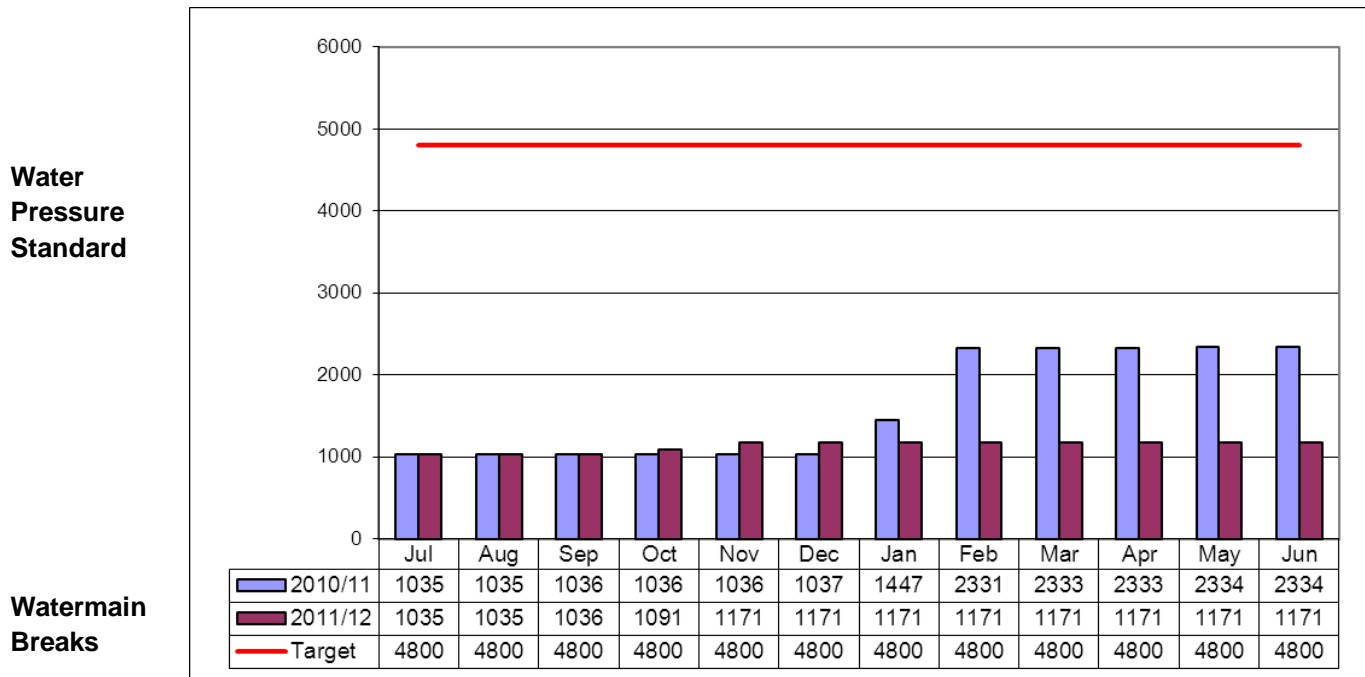


Table 3 - Number of breaks and leaks for the current month and year-to-date

Repair Type	Total	
	Month	YTD
Break	26	337
Leak	82	895
Total Main Repairs	108	1232

Table 4 – Water transferred between HWC and Central Coast year-to-date

	To Central Coast (ML)	To Central Coast YTD (ML)	To HWC (ML)	To HWC YTD (ML)
July	0.529	0.529	0.222	0.222
August	0.404	0.933	0.231	0.453
September	0.159	1.092	0.073	0.526
October	0.885	1.977	0.042	0.568
November	0.380	2.357	0.026	0.594
December	0.032	2.389	0.047	0.641
January	0.525	2.914	0.036	0.677
February	1.343	4.257	0.041	0.718
March	2.016	6.273	0.072	0.790
April	0.014	6.287	0.046	0.836
May	0.011	6.298	0.077	0.913
June				

Water Supply & Distribution – Water Table 5 - Corporate



Quality

Analyte	Monthly Mean	12 Mths Mean	Current Licence Perf #1	Guideline #2	Remarks
pH	7.6	7.6	7.6	6.5 - 9.2	Aesthetic
Colour	5.0	5.2	5.2	15 HU	Aesthetic
Turbidity	0.3	0.3	0.3	5 NTU's	Aesthetic
Chlorine	0.3	0.3	0.9	5 mg/L	Health
Aluminium	0.048	0.049	0.050	0.2 mg/L	Aesthetic
Copper	0.003	0.003	0.038	1 mg/L	Aesthetic
Fluoride	0.65	0.97	1.17	1.5 mg/L	Health
Iron	0.018	0.022	0.023	0.3 mg/L	Aesthetic
Lead	1.00	1.01	1.74	10 ug/L	Health
Manganese	0.004	0.003	0.03	0.5 mg/L	Health
Zinc	0.004	0.003	0.003	3 mg/L	Aesthetic
THMs	87.9	79.8	140.2	250 ug/L	Health




Table 6 – Supply Zones

Analyte		pH	Colour	Turbidity	Chlorine	Aluminium	Copper	Fluoride	Iron	Lead	Manganese	Zinc	THMs
Chichester	Monthly Mean	7.7	5.0	0.3	0.4	0.053	0.003	0.72	0.02	1	0.005	0.004	101.5
	12 Mths Mean	7.7	5.2	0.4	0.6	0.051	0.003	1.00	0.02	1.00	0.004	0.003	83.9
	Current Licence Perf #1	7.7	5.4	0.4	1.2	0.055	0.041	1.158	0.02	1.83	0.031	0.004	133.9
G/town	Monthly Mean	7.5	5.0	0.3	0.2	0.056	0.002	0.20	0.02	1.00	0.003	0.004	106.3
	12 Mths Mean	7.5	5.0	0.3	0.3	0.055	0.002	0.95	0.02	1.01	0.003	0.003	85.2
	Current Licence Perf #1	7.5	5.1	0.3	0.7	0.057	0.038	1.16	0.02	1.77	0.028	0.003	136.2
Lemon Tree Passage	Monthly Mean	7.7	5.0	0.2	0.2	0.038	0.003	0.91	0.01	1.50	0.002	0.002	87
	12 Mths Mean	7.7	5.0	0.3	0.2	0.037	0.002	0.97	0.02	1.04	0.003	0.002	57.8
	Current Licence Perf #1	7.7	5.2	0.3	0.5	0.039	0.038	1.13	0.02	1.65	0.025	0.003	93.2
Nelson Bay / Anna Bay	Monthly Mean	7.4	5.0	0.3	0.3	0.047	0.005	0.67	0.02	1.00	0.004	0.004	48.0
	12 Mths Mean	7.4	5.0	0.4	0.3	0.052	0.007	0.98	0.03	1.03	0.004	0.003	52.6
	Current Licence Perf #1	7.4	5.1	0.4	0.6	0.054	0.042	1.17	0.04	1.72	0.028	0.004	107.3
Gresford	Monthly Mean	8.6	N/A	0.2	0.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12 Mths Mean	8.5	N/A	0.2	0.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Current Licence Perf #1	8.6	N/A	0.2	0.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Guideline #2	6.5 - 9.2	15 HU	5 NTU	5 mg/L	0.2 mg/L	1 mg/L	1.5 mg/L	0.3 mg/L	10 ug/L	0.5 mg/L	3 mg/L	250 ug/L	
Category	Aesthetic	Aesthetic	Aesthetic	Health	Aesthetic	Health	Health	Aesthetic	Health	Health	Aesthetic	Health	

4. Wastewater Treatment Performance




















































4.1. Effluent Quality

-  Tracking favourably
-  Tracking Unfavourably
-  Licence non-compliance

EFFLUENT QUALITY PERFORMANCE

(against EPA licence requirements)

Treatment Plant	Licence Anniversary	Effluent Concentration Limits		Load Limits
		Exceedances	Compliance	
Belmont	Jul			
Boulder Bay	Jul			
Burwood Beach	Jul			
Edgeworth	Jul			
Shortland	Jul			
Branxton	Oct			
Farley	Oct			
Raymond Terrace	Oct			
Tanilba Bay	Oct			
Karuah	Oct			
Cessnock	Jan			
Kurri Kurri	Jan			
Dungog	Feb	-	-	
Dora Creek	Apr			
Kearsley	Apr			
Paxton	Apr			
Morpeth	Apr			

Belmont WWTW has had a 3DGM TSS licence breach. The plant experienced high flows during the July wet weather, which resulted in a wash out of solids causing the high TSS levels. The plant was operated in accordance with its design parameters. HWC will undertake a review of the capability of the plant to cope with sustained wet weather flows.

Burwood Beach WWTW had a 90%ile TSS exceedance in June. This exceedance was caused by wet weather which resulted in bypassing occurring through the plant. The plant was operated according to its design parameters.

Farley WWTW has breached the BOD, TSS and TN load limit. While the secondary treatment plant produces good effluent quality, algal blooms in the final maturation pond have contributed significantly to the elevated TSS, TN and BOD loads discharged from the plant. The Hunter Treatment Alliance (HTA) is progressing with design for the augmented plant to address plant performance issues and provide capacity for growth and construction commenced in early 2012. HWC has agreed with EPA on target dates for the upgrade works.

Morpeth WWTW had two 90%ile TSS exceedances and one 90%ile BOD exceedance during June and one BOD 90%ile exceedance in April. The licence allows a total of five 90%ile BOD exceedances and five 90%ile TSS exceedances. The plant is three months



into a new licence period and is tracking unfavourably against the 90%ile compliance for TSS and BOD. The plant experienced very high flows during the month and the exceedances were a result of bypassing during the wet weather event. The plant was operated according to its design parameters.

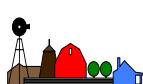
Hunter Water has load limits on a number of key parameters for wastewater treatment plants with a focus on nitrogen and phosphorus. These load limits were set around 10 years ago. Through ongoing growth in a number of our wastewater catchments the actual loads discharged are approaching or have exceeded the set load limits. EPA have consistently advised that they will only revise load limits where there is the supporting scientific or environmental studies that demonstrate the receiving waters can assimilate any additional load. This is an important area for ongoing management and Hunter Water are actively working with EPA to revise load limits through environmental studies or update infrastructure to ensure compliance. An update will be provided to the Board in June 2012 on the current status of work in this key area.

4.2. Beachwatch Results (against EPA bathing Beach Guidelines)

	Faecal Coliforms	Enterococci
Compliance at Monitored Beaches	⊙	⊙

4.3. Effluent Reuse (figures are in millions of litres)

	YTD Target	Apr-12	YTD
Direct Reuse	-	291	2087
Indirect Reuse	-	203	2600
Total Reuse	5000	494	4687



5%	61%	30%	0%	4%
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4.4. Wastewater Treatment Plant Effluent Overflows

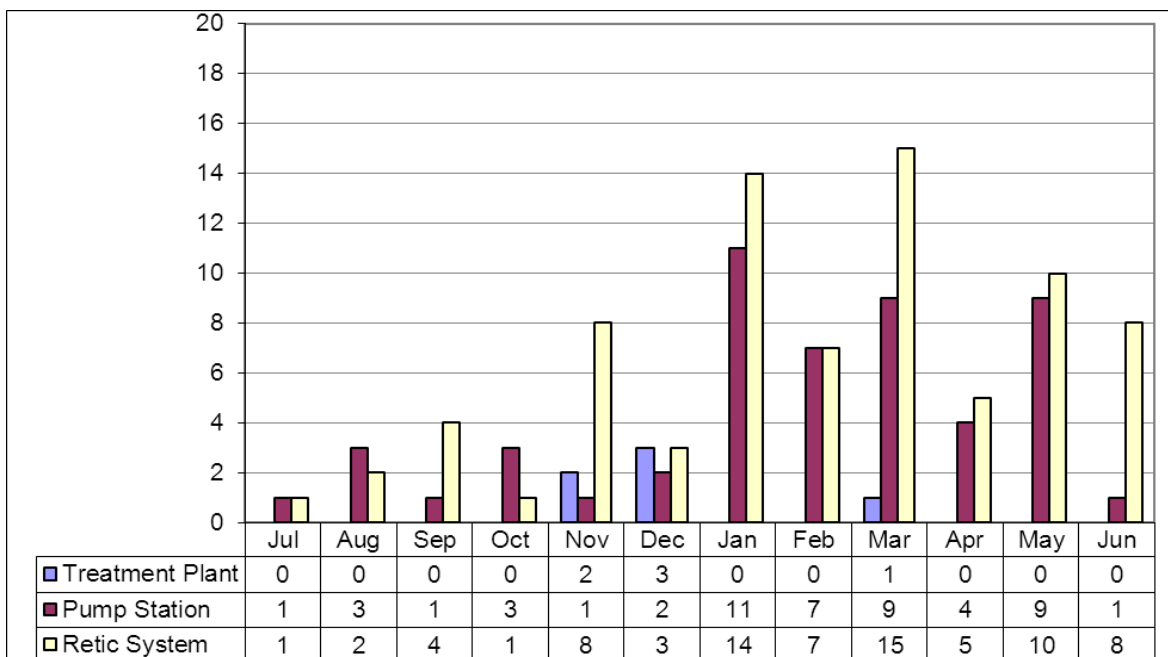
Effluent overflows from various treatment works are summarised in the table below.

Reporting Period:	Number of Overflow Days	Total Overflow Volume (ML)	Total Load (kg)	
			TN	TP
June 2012				
Kurri WWTW	3	0.59	65.32	0.80
Dora Creek WWTW	0	0.00	0.00	0.00
Edgeworth WWTW	5	49.13	300.53	108.42
Toronto WWTW	0	0.00	0.00	0.00

Shortland WWTW	0	0.00	0.00	0.00
Dungog WWTW	0	0.00	0.00	0.00
Raymond Terrace WWTW	0	0.00	0.00	0.00
Karuah WWTW	0	0.00	0.00	0.00
Tanilba Bay WWTW	0	0.00	0.00	0.00
Cessnock WWTW	0	0.00	0.00	0.00

4.5. Odour Complaints received

Graph 6 - Odour complaints from various sources



5. Storage Summary

5.1. Current Storage & Supply Statistics

The following graphs and tables present data about the current storage and supply levels and put the results in context.

5.2. Historical Storage Level Comparison

Storage & Supply Statistics	30-Jun-12	31-May-12	30-Apr-12	31-Mar-12
Chichester Dam	100.0%	99.6%	100.0%	100.0%
Grahamstown Dam	96.9%	95.6%	97.9%	97.4%
Tomago Sandbeds	100.0%	100.0%	100.0%	100.0%
Anna Bay Sandbeds	71.6%	69.4%	66.2%	65.7%
Total Storage	96.4%	95.4%	96.7%	96.4%

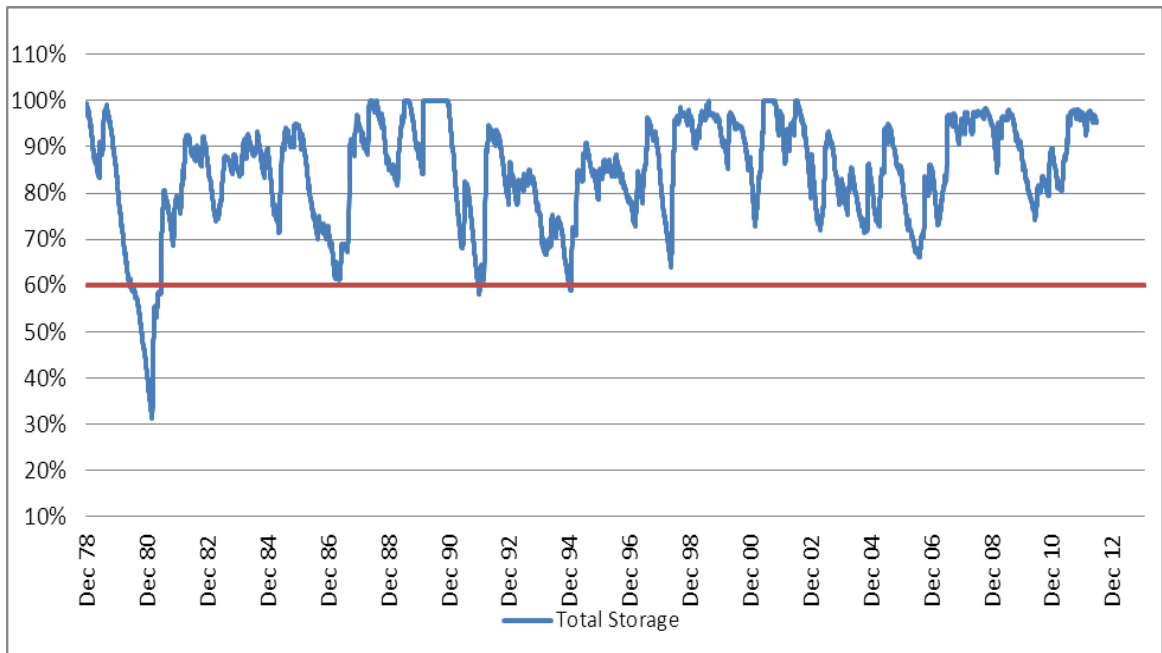
Storage levels by source showing the change over the last three months. Note that the



levels shown are at the end of the month and may not reflect the full range of variation in this period.

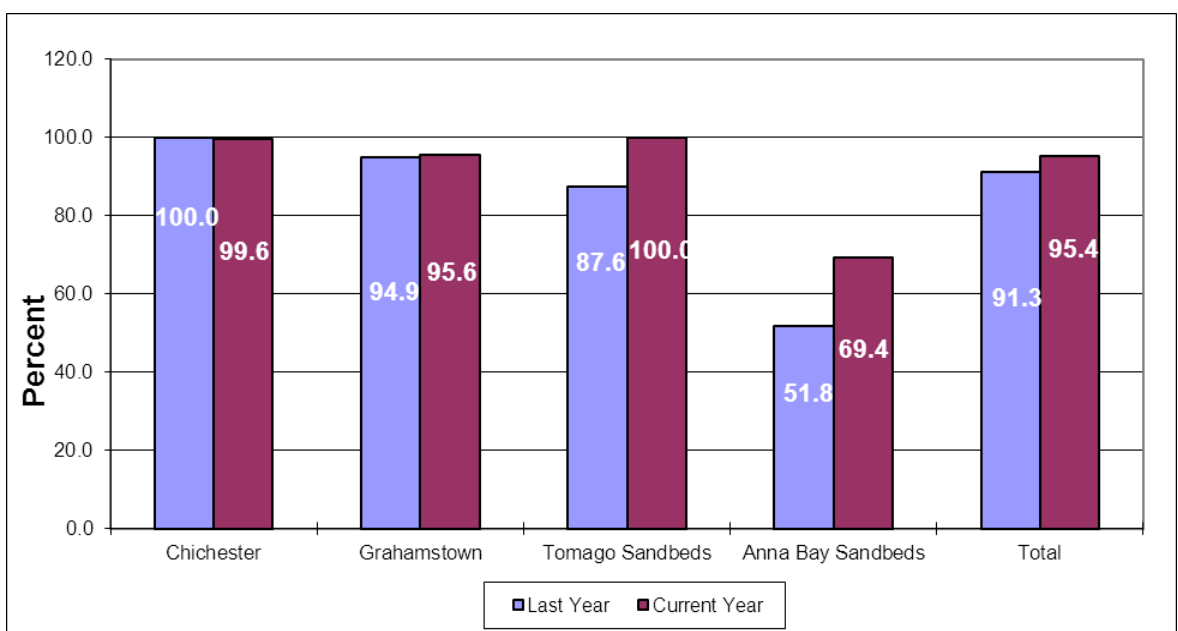
Graph 7 – Major Storage Levels – 1978 to Date

This graph presents the daily storage levels since 1978. First stage restrictions apply at 60% capacity.

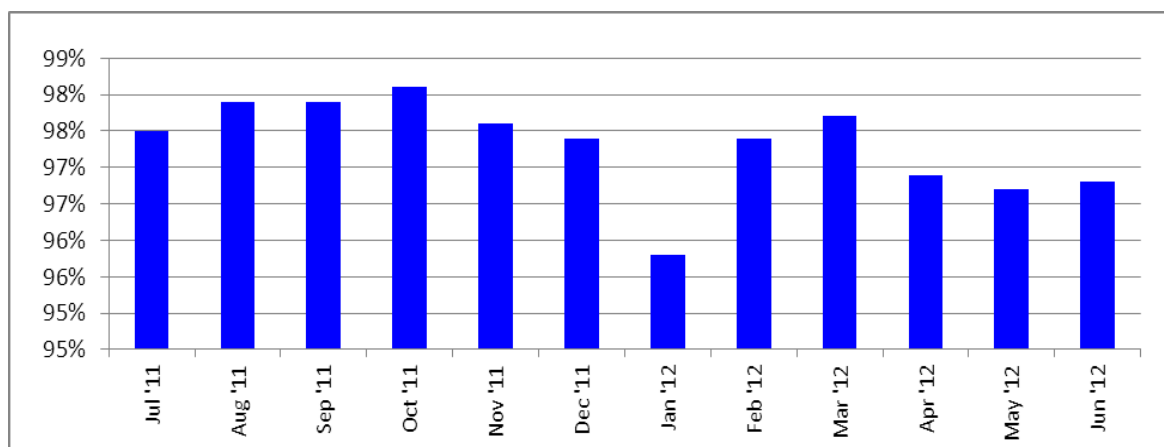


Graph 8 – Storage Levels as at 30 June 2012

Comparison of the present storage levels to the same time last year.



Graph 9 – Maximum Monthly Storage



The maximum storage level recorded in the month. This will not necessarily compare to the storage quoted for the end of the month.

6. The Williams – What the Results Show

The range of results for water quality in the Williams River above Seaham Weir for the month of June 2012 is shown in the table below. Hunter Water Corporation's monitoring is undertaken primarily as a means of assessing whether or not to pump water for storage into Grahamstown Reservoir.

The rankings shown in this month's summary are based on the worst observed result from Hunter Water's routine monitoring program at Boags Hill, near Seaham.

A high river flow was recorded mainly due to heavy rainfall recorded early in the month and continuous catchment runoff.

Under these conditions the plant nutrients nitrogen and phosphorus recorded a medium to high rating. Turbidity and the faecal indicator bacterium, *E coli* recorded medium rating.

Blue-green algae was cleared from the river by the high flows and recorded a low rating.

No water was transferred to Grahamstown due to existing high dam levels.

Total rainfall for June amounted to 112 – 133.4mm in the Chichester – Upper Chichester area. At Grahamstown 121.4mm of rainfall was recorded.

The maximum flow recorded at Mill Dam Falls was 4,473.5 megalitres per day (recorded on 13 June). Average daily flow increased to 995.8 megalitres per day from last month's 180.7 megalitres per day.

INDICATOR	RANGE FOR MONTH	RANKING*
Turbidity	19 - 36 NTU	MEDIUM
E coli	10 – 631 MPN/100mL	MEDIUM
Total Phosphorus	0.078 – 0.200mg/L	HIGH
Total Nitrogen	0.25 – 0.98mg/L	MEDIUM
Blue-Green Algae	1,040 – 2,710 cells/mL	LOW
Flow	61.6 – 4,473.5 ML/day	HIGH

* **Rankings based on highest result from Hunter Water Corporation monitoring**

7. Recommendation

The information be received.



Legend for EPA Licence Performance

Treatment Plant	The wastewater treatment works where the effluent quality is measured.
Licence Anniversary	The EPA licence period commences on the first of the month indicated in this column
Concentration Limits	This metric incorporates both 50 percentile and 90 percentile
Exceedances	Any exceedance of the 50 and 90 percentile concentration limits for the plant in the month of the report will be reported here as the number of exceedances in the month and the analyte(s) which exceeded the limit(s). This does not mean that the treatment plant has not complied with effluent quality requirements of the licence, but it may result in an unfavourable trend. See explanation below.
Load Limits	The performance measure defines performance in the licence period to date. A red dot would mean that the load limit has been exceeded for the licence period for that plant.
Compliance at Monitored Beaches	Compliance with criteria for beach water quality is explained in Section 4 of these notes. Both faecal coliforms and enterococci are organisms that indicate faecal pollution from warm blooded mammals.
Direct Reuse	Represents the total in Megalitres of effluent reused directly from the treatment works relative to the total quantity of effluent discharged.
Indirect Reuse	Represents the total in Megalitres of effluent reused from the receiving waters downstream of the effluent discharge point relative to the total quantity of effluent discharged.
Breakdown of effluent reused	The pictures are categories in a breakdown of effluent reuse by % of different applications. Respectively these are – golf courses, agriculture, industry, tree plantations and on-site reuse.
TSS	Total Suspended Solids
BOD	Biochemical (Biological) Oxygen Demand
TP	Total Phosphorus
NFR	Non filterable residue (level of suspended solids in effluent)

