



## Summary of Key Findings

### 2014 Water, Sewerage and Irrigation Performance Report

#### Key Points

- The drying climate is driving a sharp fall in the use of surface water sources (rivers and dams) to supply drinking water.
- In 2014, desalination provided 38% of Perth's drinking water supply.
- Perth's long-term downward trend in the average water consumption per property reversed in 2014, rising 2% over the previous year.
- Water and sewerage complaints numbers reach a new record low.
- The percentage of calls answered within 30 seconds by a Water Corporation operator fell to a seven-year low of 73%.

## Overview

The 2014 Water, Sewerage and Irrigation Performance Report is the latest in a series of annual reports<sup>1</sup> published by the Economic Regulation Authority (**ERA**) that examines the potable (drinking) water, sewerage and irrigation schemes in the State.

The report covers the 32 drinking water schemes and 22 sewerage schemes that supply more than 1,000 connected properties. The report also examines the performance of the State's two largest irrigators. The ERA separately publishes on its website the performance of the smaller service providers in the form of a set of data tables.<sup>2</sup>

## Drinking Water Supply

### Sources of Water

***The drying climate has seen a shift away from surface water as a source of drinking water; in Perth desalination now supplies 38% of drinking water...***

Drinking water is sourced from surface water (rivers and dams), groundwater, desalination, recycled water and bulk (purchased)<sup>3</sup> water suppliers. Between 2013 and 2014, the state-wide total volume of water sourced increased by 2.0% (from 383GL to 391GL), comprising a 1.8% rise in water sourced for Perth (from 291.5GL to 296.8GL), and a 2.4% rise in water sourced for regional towns (from 91.7GL to 93.9GL).

The total volume of sourced water is always higher than the total volume of water supplied to customers. The difference is because of "banked"<sup>4</sup> surplus water, and water losses (leaks in the distribution networks and metering inaccuracies). Between 2013

<sup>1</sup> Each report covers the year ending 30 June.

<sup>2</sup> <http://www.erawa.com.au/licensing/water-licensing/licence-statistics>

<sup>3</sup> Bulk water means carted water that has been purchased outside of the utility's area boundaries.

<sup>4</sup> Surplus water sourced from desalination is stored in dams until it is needed.

and 2014, the total volume of water supplied in Perth increased by 4.6% (to 260GL) and water supplied in regional towns increased by 2.1% (to 90GL).

Looking at Perth, between 2013 and 2014, the proportion of water sourced from groundwater fell from 47.9% to 42.1% (from 139.6GL to 124.9GL) of the total. Water sourced from desalination increased from 32.9% to 38.1% (from 95.8GL to 113.1GL), the result of the Water Corporation's Binningup desalination plant going into full production in 2014.<sup>5</sup> The increasing use of desalination in Perth is a key outcome of the State Government's climate-independent water security strategy.

In regional towns, almost 90% of the water sourced to supply drinking water came from groundwater (58.6%) and bulk water (29.6%) in 2014. The remaining water was sourced from surface water (6.8%) and recycled water (5.0%).

The drying climate has seen a progressive shift away from surface water as a source of drinking water in regional towns. In 2013, for the first time, water sourced from bulk water suppliers overtook surface water as the second largest source of drinking water in regional towns, and this trend has continued into 2014. Between 2009 and 2014, the volume of surface water has fallen from 20GL to 6.4GL, while bulk water supplies have increased from 16GL to almost 28GL.

## Water Consumption

### ***Perth's long-term downward trend in the average water consumption per property reversed in 2014...***

Water consumption per property varies widely across the State, reflecting the variation in climate. Northern towns with high temperatures have higher consumption levels than towns in the cooler south-west of the State.

Between 2013 and 2014, average annual consumption in Perth increased by 2.0% (from 249kL to 254kL), whereas consumption in the regional towns fell, on average, by 0.6% (from 310kL to 308kL). Since 2009, average annual water consumption per property has fallen by 9% in Perth and by 13% in the regional towns.

In 2014, Port Hedland overtook Newman as the town with the highest average annual residential water consumption (511kL per property), an increase of 0.4% compared to 2013. Denmark continued to have the lowest average annual residential water consumption (161kL), despite consumption increasing by 9.5% since 2013.

## Water Network Growth

### ***Connections***

### ***Growth in water connections results in network expansion; state-wide connections grew by 3.2%...***

Between 2013 and 2014, the total number of properties connected to water mains in the State grew by 3.2%, to reach 997,000 properties. The number of connections in Perth and regional towns grew by 3.0% (to 787,000 properties) and 4.0% (to 210,000

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<sup>5</sup> Perth's two desalination plants are Kwinana (50GL maximum production capacity) and Binningup (100GL maximum production capacity).

properties), respectively. Since 2009, the average annual growth in the number of connections in Perth and in regional towns has been 2.2% and 1.0% respectively.

## **Water Mains**

Between 2013 and 2014, the length of water mains in Perth increased by 1.4% (to 13,859km), which is close to the six year average growth. The length of mains in Perth has increased from 12,861km to 13,859km between 2009 and 2014.

In 2014, there was an increase of 2.3% in the total length of water mains (to 5,584km) and a return to reported growth in the total length of water mains in regional towns. The net length of regional town water mains was reduced by 6.2% in 2013 following the Water Corporation's reclassification of pipe categories, and a review of the boundaries for each scheme.

## **Water Main Breaks**

### ***Frequency of water main breaks depends on local factors...***

The level of water main breaks varies year by year as the number of breaks is often driven by local conditions, such as soil types, tree root intrusion, third party damage and the standard of maintenance.

In 2014, Perth customers experienced an average of 13.0 water main breaks per 100 km of water main, which is close to the six year average of 13.4 per 100 km of main.

In regional towns, the average level of main breaks climbed up by 10.2% (from 19.6 to 21.6) compared to 2013; the increase was, in part, driven by triple-digit percentage increases in four regional towns.<sup>6</sup> However, the average level of mains breaks (21.6) in regional towns remained close to the six year average (19.6 per 100 km of main).

## **Quality of Service**

### ***Water service complaints and water quality complaints reach new record low...***

In 2014 in Perth, complaints relating to the quality of water and complaints relating to the reliability of supply (water service) remained at last year's record low levels, 0.1 and 0.3 per 1,000 properties, respectively.

In regional towns, the average level of complaints addressing water quality and water service both dropped to new record low levels. Water quality complaints dropped from 0.9 to 0.1 per 1,000 properties and water service complaints dropped from 0.8 to 0.1 per 1,000 properties. According to the three water utilities involved, Aqwest, Busselton Water and Water Corporation, the reductions in both complaints types are driven by changes in the method used to separate customer enquiries from complaints.<sup>7</sup>

### ***2014 was the first year that Water Corporation reported against the new reporting framework for the frequency of water supply interruptions...***

An unplanned interruption means that the customer's water supply is interrupted without at least a 24 hours' notice. In 2014, the average duration of unplanned interruptions in Perth was 117 minutes, down 9.8% on the 129.7 minutes reported in 2013, while in

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<sup>6</sup> Derby, Dunsborough/Yallingup, Jurien and Kununurra.

<sup>7</sup> The ERA will examine the complaints handling process in the next operational audit of each utility's licence.

regional towns the average unplanned interruption lasted 88.4 minutes, up 3.4% on the 86.9 minutes reported in 2013.

The average frequency of unplanned interruptions is a measure of the number of customers who have experienced a loss of water supply due to an unplanned interruption during the year.

Since the reporting year 2012/13, water utilities have been required to count also customer connection interruptions (breaks occurring between the water main and the customer's meter) in addition to mains interruptions, when they calculate the average frequency, and duration, of interruptions.<sup>8</sup> Due to this change in the indicator definition, the average frequency of unplanned interruptions appears markedly higher in 2014.

### ***Drinking water met all applicable quality standards...***

All of the State's 61 supply zones continued to achieve 100% compliance with the drinking water quality standards; an ongoing achievement since 2009.

## **Sewerage Schemes**

### ***Sewage Collected and Recycled***

#### ***Volumes of wastewater collected per property show a modest increase in 2014...***

In 2014, the average property in Perth produced 190kL of sewage (up from 187kL in 2013), while the average property in regional towns produced 188kL of sewage (up from 185kL in 2013). Between 2013 and 2014, the state-wide total volume of sewage collected increased by 3.6% (up from 156GL to 162GL). Approximately 80% of the total volume of sewage was collected in Perth, with the remaining 20% being collected in regional towns.

#### ***Regional towns recycled more than half of their sewage effluent in 2014...***

Most of the State's towns recycle at least some proportion of their treated sewage effluent (wastewater). Wastewater can be used, for example, to irrigate the town's parks and ovals; or for agricultural, industrial or commercial uses. The use of treated wastewater saves water that has been treated to a standard suitable for drinking.

In 2014, the regional towns recycled, on average, 54.5% of sewage effluent (up from 54.1% in 2013). There were six regional towns that recycled 100% of their effluent in 2014.<sup>9</sup> Perth was one of five centres that recycled less than 10% of their effluent in 2014;<sup>10</sup> in Perth, 7.4% of effluent was recycled (down from 7.9% in 2013).

#### ***Only modest growth in total volume of recycled wastewater supplied since 2011...***

Total recycled water supplied is the sum of all treated effluent that is used for purposes other than to supply drinking water, either by the water utility itself, or supplied to another business. The volume of recycled water supplied can be considered to be an indirect measure of the volume of drinking water or non-potable water saved.<sup>11</sup> Between 2009 and 2014, the total volume of recycled water supplied has grown from 10.6GL to 11.9GL

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<sup>8</sup> Due to an oversight, Water Corporation only commenced reporting on customer connection breaks in 2013/14 instead of 2012/13.

<sup>9</sup> Albany, Australind/Eaton, Broome, Dunsborough, Kununurra and Merredin.

<sup>10</sup> Bunbury, Collie, Jurien, Mandurah and Perth.

<sup>11</sup> That might have been supplied had recycled water not been available.

in regional towns and from 7.6GL to 10GL in Perth. However, the growth mainly occurred between 2007 and 2011. The state-wide total volume of wastewater supplied for further use has only grown by 1GL between 2011 and 2014.

In 2014, the largest use of recycled water was in the commercial, municipal and industrial sector (52.8%), followed by agricultural uses (23.4%) and onsite reuse<sup>12</sup> (12.6%).

## Sewerage Network Growth

### Connections and Sewer Mains

#### **Customer growth leads to network expansion and increased sewer connections...**

In 2014, the total length of sewer mains and channels grew by 1.7% (to 11,637 km) in Perth and by 3.9% (to 3,467km) in regional towns.<sup>13</sup> Between 2009 and 2014, just over 1,000 km of new sewer mains have been constructed in the State, an increase of 7.4%. In 2014, the number of connected sewerage properties grew by 2.1% (to 713,000) in Perth, and by 4.7% (to 156,000) in regional towns.<sup>14</sup> Since 2009, the average annual growth of sewerage connections has been 1.7% in Perth and 1.0% in the regional towns.

Between 2009 and 2014, the spatial density of properties - the number of property connections per km of sewer main – has grown from 59 to 61 in Perth and from 43 to 44 in regional towns.

#### **The number of sewer main breaks and chokes remains unchanged...**

Sewer main breaks and chokes (partial or total blockages) can indicate the standard of maintenance of the network. However, chokes often occur due to customer actions (e.g. non-soluble objects flushed down the toilet).

In 2014, the level of breaks and chokes in Perth rose by 5.6% (to 17.0 per 100 km of main), but remained below the five year average of 18.6 per 100 km of main. On average, the level of breaks and chokes in regional towns is approximately 35% higher than in Perth. The level of breaks and chokes in regional towns fell by 1.6% (to 24.2 per 100km of main) in 2014, below the five year average of 25.3 per 100 km of main.

## Quality of Service

#### **Sewerage service complaints fall to a record low...**

The levels of sewerage service complaints in Perth and in the regional towns, on average, have continued the long-term downward trend. Between 2009 and 2014, the level of sewerage service complaints in Perth has fallen from 6.2 to 0.1 per 1,000 properties, while in regional towns complaints have fallen from 7.5 to 0.3 (per 1,000 properties). All except one of the State's 22 sewerage schemes are operated by Water

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<sup>12</sup> On-site reuse means that the utility uses recycled water within the sewage treatment works, other than for the actual sewage treatment process itself.

<sup>13</sup> Last year's reported reduction in the length of mains in regional towns was the result of a review of town boundaries, which removed some mains from the total count.

<sup>14</sup> There are less sewerage connected properties than there are water connected properties in the State. The difference between the two is because not all properties are connected to sewer mains, instead the property is served by an on-site septic tank.

Corporation. The reasons for the reduction in the level of complaints recorded by Water Corporation are discussed under water quality and water service complaints.

### ***The frequency of sewer overflows fluctuates in accordance with weather events...***

The number of sewer overflows that have been reported to the environmental regulator each year varies widely. The variation appears to be mostly driven by adverse weather events (such as storms or flooding), and local conditions rather than sewer infrastructure maintenance issues.

In Perth, the level of sewer overflows remained low in 2014 (0.2 per 100 km of sewer main), which is below the six year average of 0.3 per 100km of sewer main. In 2014, the number of sewer overflows in regional towns fell sharply, down from 16.2 to 4.5 per 100 km of sewer main, a six year low.

## **Environmental Compliance**

### ***The majority of sewage treatment plants achieved full compliance with their environmental licence standards...***

In 2014, 31 of the 38 monitored sewerage treatment plants were compliant with their environmental licence conditions at all times throughout the year.<sup>15</sup> Seven towns did not achieve full compliance, mainly due to exceedances in monitoring targets or limits. Three of the seven non-compliant towns (Australind/Eaton, Kalgoorlie-Boulder and Karratha) have not achieved full compliance with the standards for three years.

## **Combined Water and Wastewater Performance**

In some towns the water and sewerage services are provided by separate utilities, but in 35 towns the same utility is responsible for both services. This section of the report covers the performance indicators applicable to the combined water and sewerage service.

## **Quality of Service**

### ***The level of complaints remained low...***

In those towns where the water and sewerage service is provided by the same utility, the water and sewerage complaints are combined to provide an overall picture of customer satisfaction with the service provided by the utility. The earlier discussion<sup>16</sup> regarding water complaints and sewerage complaints has disclosed the substantial fall in the level of complaints received in Perth and regional towns in 2014. The reductions in the separated water and sewerage complaints have fed through to similar reductions in the combined complaints data.

In Perth, the level of complaints has plunged from 38.0 per 1,000 connected properties in 2009 to 1.0 per 1,000 connected properties in 2014. In regional towns, the reduction has been from 25.9 in 2009 to 0.9 in 2014.

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<sup>15</sup> The exceptions were Australind/Eaton, Kalgoorlie-Boulder, Collie, Karratha, Manjimup, Northam and South Hedland. Some towns have more than one sewage treatment plant, which explains why the total number of sewage treatment plants exceeds the number of towns.

<sup>16</sup> Refer to the *Quality of Service* on pages 3 and 5 of the Summary of Key Findings.



### ***The percentage of calls answered within 30 seconds by a Water Corporation operator fell to a seven-year low in 2014...***

Water Corporation is the only water service provider in Western Australia that operates a state-wide customer call centre, covering both water and sewerage enquiries.

In 2014, 72.6% of telephone calls to the Water Corporation call centre were answered within 30 seconds, down from 73.1% in 2013. The percentage of calls that are answered within 30 seconds has decreased during past six years: in 2009, 82.4% of calls were answered within 30 seconds.

## **Irrigation**

This section of the report details the performance of the State's two largest irrigators: Harvey Water,<sup>17</sup> who operate three irrigation networks in areas around Harvey in the south west, and Ord Irrigation Cooperative, who supply customers in the area to the south of Kununurra in the far north.

### ***Water Supply***

#### ***Mixed results for the State's two largest irrigators in 2014...***

The total volume of water supplied by Harvey Water grew by 34.7% (from 41.8GL to 56.3GL) in 2014, the first annual increase in water supplied since 2010. The fall in supply in previous years was the result of reduced water allocations and contraction in the local dairy industry.

The volume of water supplied by Ord Irrigation fell by 4.8% (from 100.6GL to 95.8GL) in 2014, which was a six-year low. The volume of water supplied by Ord Irrigation has progressively declined over the past seven years due to a fall in demand from customers, the result of changes in land use.<sup>18</sup>

### ***Customers and Quality of Service***

#### ***The size of the customer base remains almost unchanged; customers are satisfied with the irrigators...***

Between 2013, and 2014, the number of customer service points on the Harvey Water networks grew from 1,751 to 1,759 (or 0.5%), while customer service points on the Ord Irrigation networks fell from 271 to 269 (or -0.7%). Customer complaint numbers have traditionally been low or non-existent for both irrigators; this was unchanged in 2014.

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<sup>17</sup> Harvey Water is the trading name of the South West Irrigation Management Cooperative (SWIMCO).

<sup>18</sup> There has been an increase in the amount of land used for silviculture in recent years. The decline in water demand for silviculture has fallen as plantations mature.