

Water Resources Management Plan Annual Review

Albion Water Ltd 2024 to 2025

Albion Water Limited

www.albionwater.co.uk

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1 Introduction

This annual review of Albion Water's Water Resources Management Plan (WRMP) covers the reporting year of April 2024 to March 2025 for Albion Water's two, DMA sized, supply zones at Upper Rissington in Gloucestershire and Oaklands in Essex.

Following the request from the regulator Albion Water has resubmitted a revised plan and are now working with WRc going forward on all submissions to ensure compliance with guidance.

Albion Water has in its belief made progress in data monitoring since its last submission and also believed the previous submission was to the required standard, which due to Albions capacity, resources failed to meet the required standard which Albion Water accepts and as such will be using WRc going forward for verification on all Water Resources returns.

2 Progress against WRMP

Albion Water continues to operate the two inset appointments under Ofwat's new appointments and variations (NAV) process, where it is responsible for the supply of drinking water. Which are:

- Upper Rissington, Gloucestershire
- Oaklands, Essex

Water efficiency is an area that the business is keen to monitor and improve over the coming years not only from a moral and resource perspective but also as part of the commercial aspect of a loss of water to a small company.

3 Upper Rissington Gloucester

3.1 Data and operability checks

The flow data exhibits a reasonable diurnal profile but both total daily flow and minimum night flow is considered relatively high. This is likely to be due to a potential leak but if there are any boundary or connectivity issues this could also be a factor and will be investigated if final leakage checks fail to identify the source.

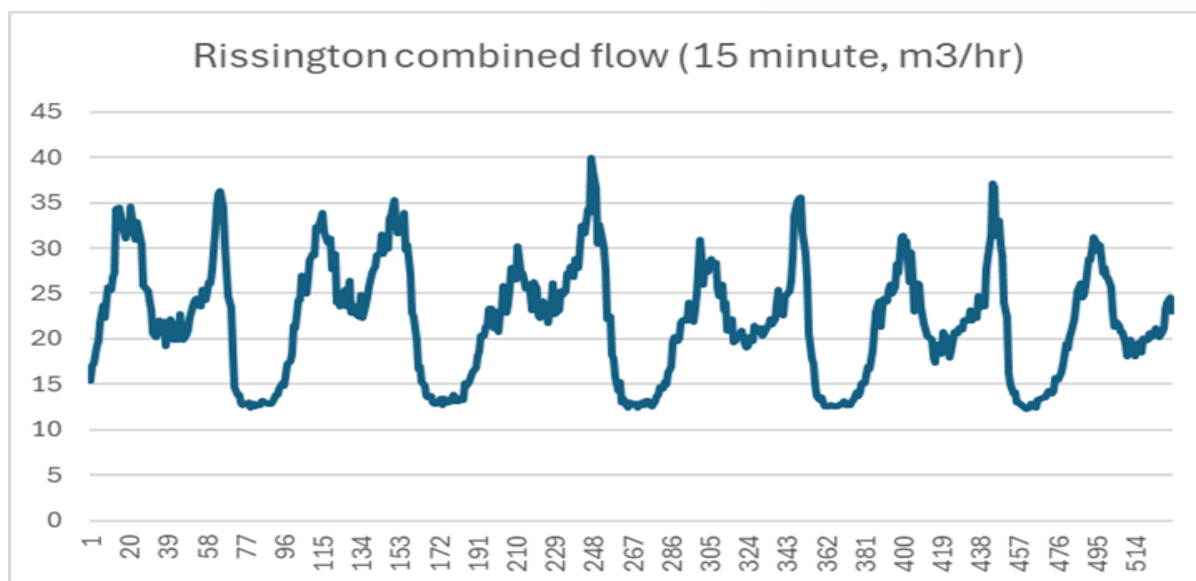


Figure 1 - Rissington 15min Flow data

3.2 Water balance (top down and bottom up)

WRc reviewed our data and looked at the top down and bottom-up leakage calculations, noting that they were following the broad principles set out in the reporting guidance, but noting that in some areas the guidance when applied to NAVs requires some pragmatism and interpretation. An example being that NAVs are structured more closely to individual District Metered Areas (DMAs) within Wholesale water companies so areas such as Distribution Input meter verification programmes would not apply in the same way as they are more likely to have DMA style inlets (as opposed to large diameter electromagnetic flow meters).

3.2.1 Top Down

The top-down water balance is shown in the table below.

Table 1 - Rissington Top Down

Top-down component	Value (ML/d)	Uncertainty	SD	Variance	Comments
TDF/DI	0.508	2%	0.005	0.000	Included higher uncertainty due to concerns about zero flows
Continuously logged commercial	0.000	2%	0.000	0.000	
Measured household - water delivered	0.177	2%	0.002	0.000	Included potable and not potable as confirmed that currently all fed from potable supply. No data on supply pipe leakage or meter location so treated all as WD

Measured household - MUR	0.004	10%	0.000	0.000	Included 2% in the absence of any other data, based on meter manufacturers error curves
Measured household - UGSP	0.000	10%	0.000	0.000	No data
Measured non-household - water delivered	0.003	2%	0.000	0.000	
Measured non-household - MUR	0.000	10%	0.000	0.000	
Measured non-household - UGSP	0.000	10%	0.000	0.000	
Unmeasured household	0.074	20%	0.008	0.000	
Unmeasured non-household	0.000	20%	0.000	0.000	
Water taken illegally unbilled	0.003	50%	0.001	0.000	Reporting guidance for leakage - generic allowance
Water taken legally unbilled	0.006	50%	0.002	0.000	Reporting guidance for leakage - generic allowance
Operational use	0.003	50%	0.001	0.000	Reporting guidance for leakage - generic allowance
Top Down Leakage	0.237	7.87%	0.010	0.000	

The top-down leakage estimate is 0.237 MI/d for 2024/25.

3.2.2 Bottom-up leakage

The bottom-up leakage estimate has been derived using an industry average household night use allowance of 1.7 litres per property based on UKWIR references. This was recommended to us by WRc and is considered a relatively low estimate as far as the UK water sector is concerned but provides a starting point until we look to make improvements by undertaking night use studies to provide more specific information.

Table 2 - Rissington Bottom Up

BU component (based on most recent data)	Value (ML/d)	Uncertain	SD	Variance	Comment
MNF	0.3485	5%	9E-03	8E-05	
Customer logged (measured)	0.0000	5%	0E+00	0E+00	
Customer logged (estimated)	0.0000	5%	0E+00	0E+00	
HHNU	0.0212	10%	1E-03	1E-06	Based on 1.7 l/prop/hr in absence of any other data
NHNU	0.0000	10%	0E+00	0E+00	
		5.36%	9E-03	8E-05	
Night leakage	0.33				
HDF	24	5%			
daily leakage ML/d	0.32737	10.36%			

The bottom-up leakage estimation is 0.33 ML/d and the water balance gap between top down and bottom up is 17.3% therefore the post Maximum Likelihood Estimation (MLE) estimate will not be used for reporting, reverting to the top-down estimate as per the Ofwat reporting guidance for leakage.

3.3 Per Capita Consumption

The PCC estimate for Rissington is based on the assumed occupancy rate of 2.36 people per property. There were 519 measured properties and 185 unmeasured properties, giving an overall population of 1,661.

The measured volume is 0.177 ML/d on average, and the unmeasured volume is 0.074 ML/d giving a measured PCC of 144.5 l/hd/day and an unmeasured PCC of 169.7 l/hd/day and a combined PCC of 151.1 l/hd/day.

The PCC is based on the top-down water balance, as the post-MLE estimate was not used due to the water balance gap.

3.4 Bulk agreement review:

Albion Water accepts that we have exceeded the maximum annual flows and therefore have and are conducting the following in priority order:

1. Conduct leakage review of Victory Fields - Rissington (New build MDPE pipework) - (Completed June 2025, no significant leaks found).
2. Conduct leakage review of Sopwith Road – Rissington (Old adopted housing supplied by galvanic pipework) Due October/Nov 2025.
3. Review any boundary or connectivity issues if no leakage detected.

In the meantime, Albion Water has liaised with and in discussion with Thames Water around the need to increase bulk supply agreements, however this will be reviewed formally post investigations.

3.5 Demand for Drinking Water Management Activities

3.5.1 Proactive Monitoring

Following our last AR Albion Water committed to support better data management and overall usage reviews. This was achieved by utilising weekly checks on usage using management systems such as Power BI.

Although this has been an improvement there are still some key recommendations from WRc highlighted Section [9.3, table 7](#)

3.5.2 Customer engagement and Per Capita Consumption

This year Albion Water will be engaging in various methods of passive usage reduction within Upper Rissington community. These will follow various campaigns to help customers understand how they can be more water wise.

3.5.3 Dual supply and green water

In Albion Waters' WRMP 19 and 2024 it states the supply of green water to reduce potable demand at both sites was expected to be delivered by 2018/19. However, due to legislative challenges around the definition of Wholesomeness and sanitary appliances the project has been on hold until a study has been completed by DEFRA with subsequent changes to the Water Industry Act to allow the use of non-potable water at outside taps and WCs.

Albion Water is still working within the industry and regulators to allow this solution to become viable via legislative change and is still able to implement these changes quickly.

4 Oaklands

Drinking water supplies to Oaklands is supplied under a bulk supply agreement with Essex and Suffolk Water.

4.1 Data and operability checks

There is consistent flow data for 2024/25 available for the supply into Oaklands, however there is noted across the reporting year that in 359 or 365 days there was at least one 15-minute period with zero flow recorded.

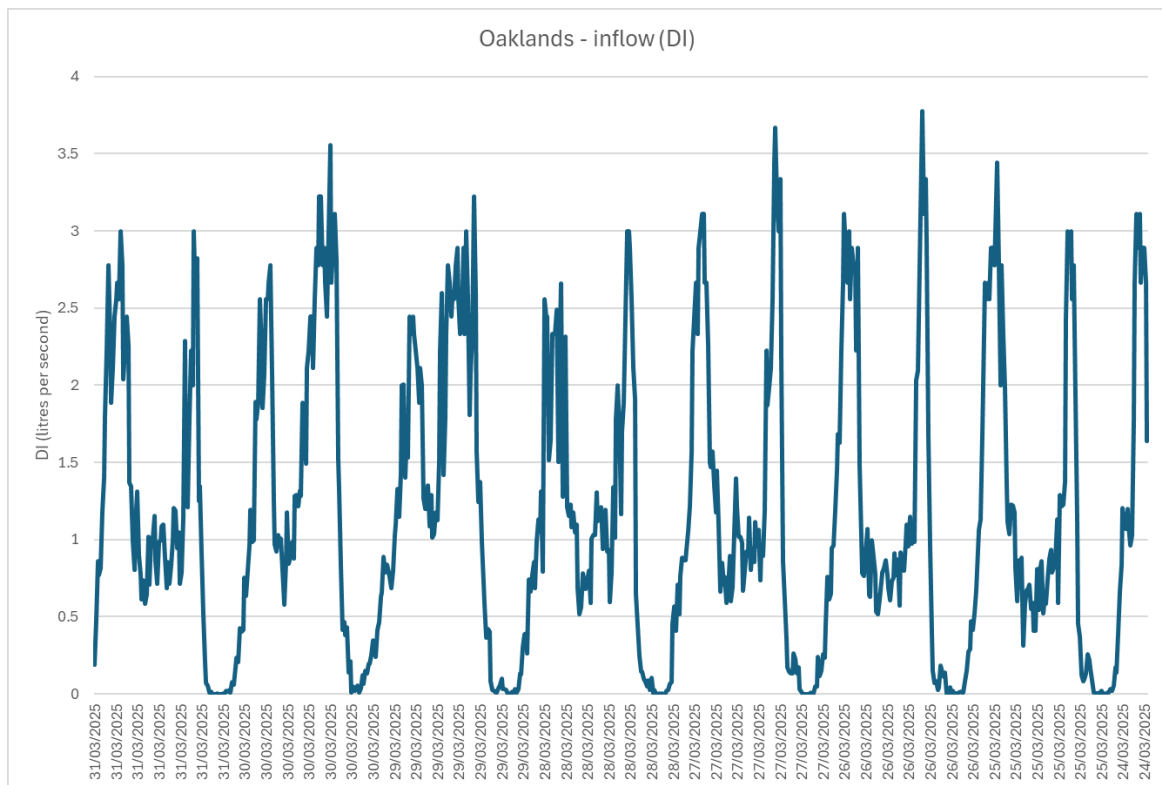


Figure 2 - Oaklands 15min flow data

In preparing our revised annual WRMP we engaged with WRc, and they confirmed that the regular zero flow at night is an area that requires further investigation. For 2024/25 the flow data will have to be used “on face value” however WRc have made a number of observations:

- The zero flows at night could potentially be genuine, i.e. reflecting that there is zero leakage on the site and very little or no consumption in the form of night usage. This however is considered an unlikely scenario that there has been consistently low night usage throughout the majority of the year. Considerably higher night usage is evident on New Year’s Eve however flow drops to zero in the morning which suggests that the meter is not fully capturing low flows.
- There could be an issue in relation to the installation specification of the meter, WRc recommended that this is reviewed between Albion Water and NWL E&S to understand if there could be installation features such as bends, tapers or elbows impacting on the potential accuracy of the bulk supply flow.

- The meter itself could potentially be oversized or not of a sufficient turndown ratio to record the low flows accurately. WRc also recommended to Albion Water to review this with NWL E&S.
- There could be potentially ongoing issues with the hydraulic integrity of the site in terms of breached boundary valves. WRc have recommended that we review the integrity of the site through valve checks, potentially undertaking a pressure zero test at night.

4.2 Water balance (top down and bottom up)

WRc reviewed our data and looked at the top down and bottom-up leakage calculations, noting that they were following the broad principles set out in the reporting guidance, but noting that in some areas the guidance when applied to NAVs requires some pragmatism and interpretation. An example being that NAVs are structured more closely to individual District Metered Areas (DMAs) within Wholesale water companies, so components such as Distribution Input meter verification programmes would not apply in the same way as they are more likely to have DMA style inlets (as opposed to large diameter electromagnetic flow meters).

4.3 Top Down

The issues identified in the data and operability checks manifest in the top-down water balance, with the Distribution Input component from the bulk inlet meters recording less than the measured consumption at properties. This results in leakage from the top-down water balance being negative.

Table 3 - Oaklands Top Down

Top down component	Value (ML/d)	Uncertainty	Std. Deviation	Variance	Comments
Distribution Input (bulk import total daily flow)	0.094	10%	0.005	0.000	Included higher uncertainty due to concerns about zero flows
Continuously logged commercial	0.000	2%	0.000	0.000	
Measured household - water delivered	0.139	2%	0.001	0.000	Included potable and not potable as confirmed that currently all fed from potable supply. No data on supply pipe leakage or meter location so treated all as WD
Measured household - MUR	0.003	10%	0.000	0.000	Included 2% in the absence of any other data, based on meter manufacturers error curves
Measured household - UGSP	0.000	10%	0.000	0.000	No data

Measured non-household - water delivered	0.000	2%	0.000	0.000	
Measured non-household - MUR	0.000	10%	0.000	0.000	
Measured non-household - UGSP	0.000	10%	0.000	0.000	
Unmeasured household	0.000	20%	0.000	0.000	
Unmeasured non-household	0.000	20%	0.000	0.000	
Water taken illegally unbilled	0.001	50%	0.000	0.000	Reporting guidance for leakage - generic allowance
Water taken legally unbilled	0.001	50%	0.000	0.000	Reporting guidance for leakage - generic allowance
Operational use	0.001	50%	0.000	0.000	Reporting guidance for leakage - generic allowance
Top Down Leakage	-0.050	-19.72%	0.005	0.000	

The top-down leakage using data provided resulted in annual average leakage of minus 0.05 MI/d for 2024/25.

4.4 Bottom-up leakage

The bottom-up leakage highlights a similar issue with negative leakage being the output:

Table 4 - Oaklands Bottom Up

BU component (based on most recent data)	Value (ML/d)	Uncertain	SD	Variance	Comment
MNF	0.0028	5%	7E-05	5E-09	
Customer logged (measured)	0.0000	5%	0E+00	0E+00	
Customer logged (estimated)	0.0000	5%	0E+00	0E+00	
HHNU	0.0176	10%	9E-04	8E-07	Based on 1.7 l/prop/hr in absence of any other data
NHNU	0.0000	10%	0E+00	0E+00	
		-11.93%	9E-04	8E-07	
Night leakage	-0.01				
HDF	24	5%			
daily leakage ML/d	-0.0148	-6.93%			

The bottom-up leakage for 2024/25 was minus 0.01 MI/d and the water balance gap is 37.3% which is outside of the +/- 5% to undertake the Maximum likelihood estimation process, and normally top-down leakage would then be reported.

WRc recommended that using the data from Oaklands on face value would not provide an accurate output to report in the annual WRMP review for 2024/25 and recommended an alternative.

There is greater confidence in the accuracy of the property measured volumes, therefore reporting Distribution Input based on the measured property volumes plus a notional leakage allowance, whilst not being ideal, is going to be more appropriate than taking the data on face value and reporting negative leakage in the tables.

Using the property connection elements of the Unavoidable Annual Real Losses (UARL) formula, an allowance of 0.01 MI/d for leakage has been added. The rationale for including a relatively low allowance is since investigating the bulk supply inlet meter in September 2025 and identified a passing boundary valve. On closure this appears to have resolved the meter bottoming out however there are several further actions and investigations that have been recommended to improve confidence and ensure data quality is appropriate in the future.

We have reported our Distribution Input as 0.15 MI/d based on 0.14 MI/d consumption plus an allowance of 0.01 MI/d of leakage. This is more reflective of distribution input than using the raw bulk supply inlet data that is less than consumption on measured properties.

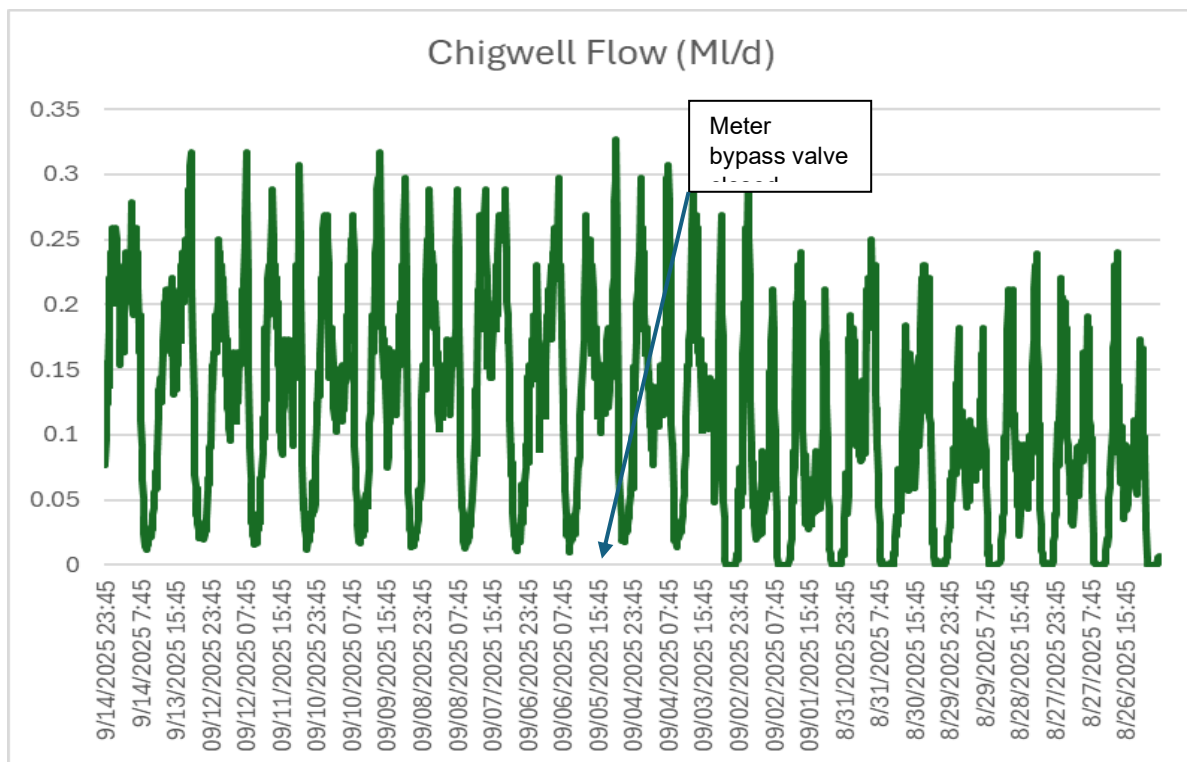


Figure 3 - Chigwell Night Flows

Chigwell flow has a minimum night flow of around 0.01 MI/d following the closure of a boundary valve (meter bypass valve that was passing water). This is potentially indicative of a very low level of leakage, and the chart presents raw data prior to any household night use allowance. Whilst not from the 2024/25 reporting year, this data does provide an indication that the network may be relatively leak free, however WRc recommended to Albion Water that further work should be urgently undertaken to improve confidence in the leakage reporting outputs.

5 Per Capita Consumption

The PCC estimate for Oaklands is based on the assumed occupancy rate of 2.36 people per property. There were 432 measured properties and no unmeasured properties, giving an overall population of 1,019.

The measured volume is 0.139 MI/d on average giving a PCC of 137.4 l/hd/day.

The PCC is based on the top-down water balance, as the post-MLE estimate was not used due to the water balance gap.

5.1 Demand for Drinking Water Management Activities

5.2 Proactive Monitoring

Following our last AR, Albion Water committed to support better data management and overall usage reviews. This was achieved by utilising weekly checks on usage as shown in Figure 6 below using management system such as Power BI.

Chigwell Flow Data

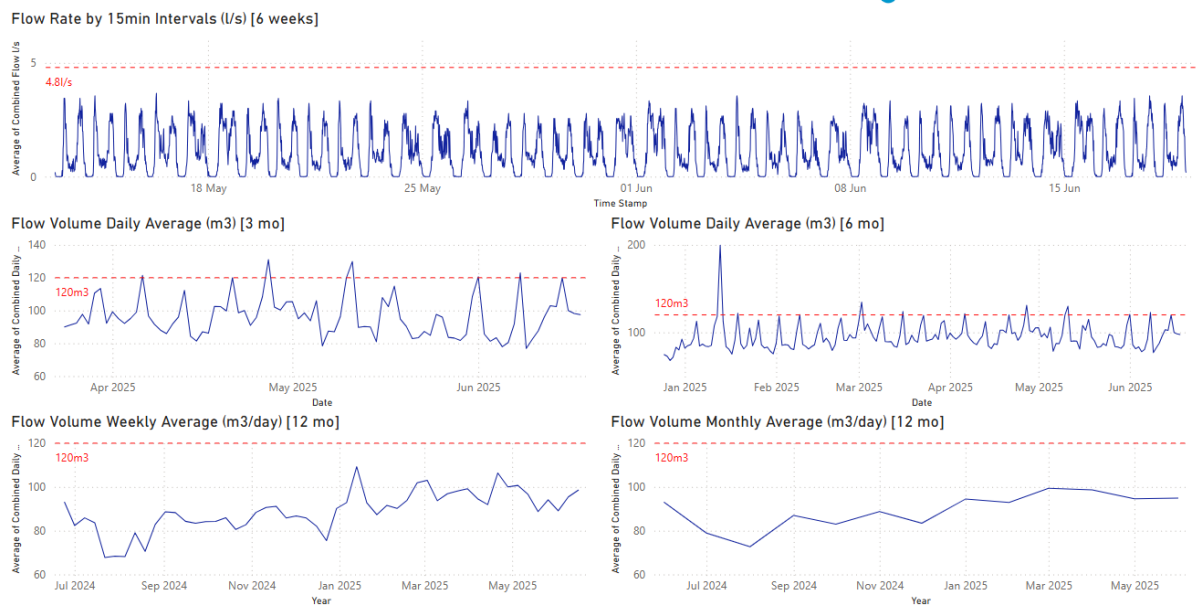


Figure 4 - Power Bi Oaklands Flow Data

Ongoing monitoring using Power BI will be conducted via our monthly management meeting where usage, communications plans and potentially identified leakage actioned.

5.2.1 Customer engagement and Per Capita Consumption

This year Albion Water will be engaging in various methods of passive usage reduction within the Oaklands community. These will follow various campaigns to help customers understand how they can be more water wise. Below are some of the key messages that will be delivered.

5.2.2 Leaflets Campaign

This year Albion Water will be engaging in various methods of passive usage reduction within Upper Rissington community. These will follow various campaigns to help customers understand how they can be more water wise.

5.2.3 Dual supply and green water

As per [section 2.1.5](#), Albion Water is still working within the industry and regulators to allow this solution to become viable via legislative change and is in position to implement these changes quickly.

5.3 Investigations and Data Anomalies

The main concern that needed to be addressed following the 2023/24 AR was to understand and verify whether the applied occupancy rates were accurate following the billing runs.

The billing runs are still above 90% of the reads which is substantially above that of 30% in 2023/24. However, this has still given us a discrepancy in our data showing that we are billing for more than we are taking from the incumbent which we believe is inaccurate as demonstrated in the AR Tables. As the billing is conducted by smart meters, we will be working with the incumbent to identify where the discrepancy is emanating from.

As both the incumbents' meters and Albions Water meters suggest a usage of approx. 80-90 PCC it is suggested that, as this is a new development, there could be an alternative supply not monitored or a bypass system that will need to be investigated by both parties. Although the PCC figure of 80-90 would be where we would like to be we recognise that this, at present without the use of dual supply, is not likely and want to be transparent in the AR and work to identify the anomaly.

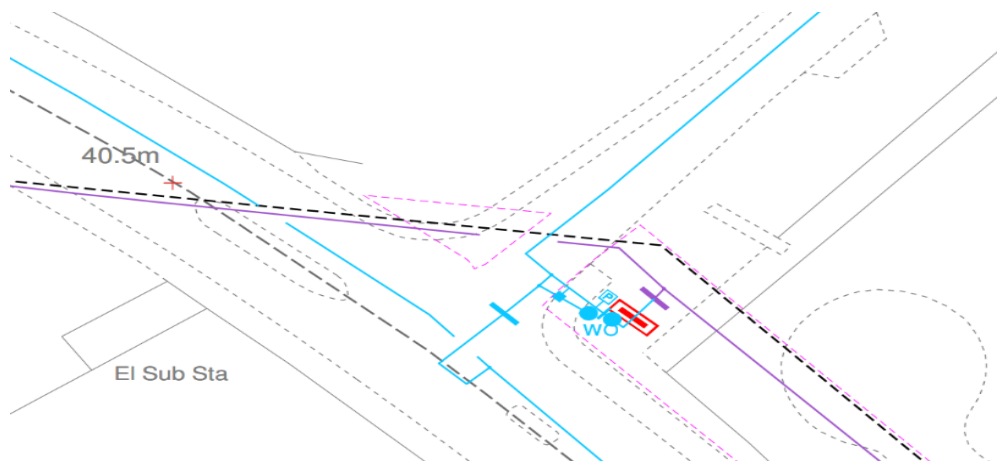


Figure -5 Essex and Suffolk connection/bypass

Since submitting the initial return and re-submitting Albion Water and Essex and Suffolk water have worked to together to identify the root cause which has been identified where a bypass valve was left partially open which has been rectified, with further recommendations stated in Section 4.1 provided by WRc to be investigated.

6 Options benefits

Albion water is aware that we still have some significant leakage on our Rissington Inset. Having just completed a leakage survey it has been identified there could be a significant leak on the connection point between the potable supply and the non-potable supply (Which is required as the use of non-potable water is not regulatory achievable due to the requirement of wholesome water being required to supply sanitary appliances under the Water industry Act).

Work to remedy this leakage is now pencilled in for August 2025 and will be monitored to review our distribution losses weekly. This should bring the options benefits back in line with the WRMP24.

7 Metering

Albion Water has reviewed the percentage of its metered properties and at present will not be looking to increase the number over the next 12 months due to greater priorities in identifying leakage and reducing PCC.

However, Albion does believe that the current capture rate on both insets is relatively high and those remaining do have some engineering challenge being on dual supplies.

8 Summary

Albion Water has worked hard identifying issues over the past 12 months and shows some significant achievable challenges ahead which we are committed in resolving. However, we do believe this demonstrates a more transparent AR this year with clear issues identified and clear objectives in getting a better understanding of our usage.

9 Managing Directors Statement

As a Director of Albion Water Ltd, I reaffirm our commitment to sustainable, transparent, and proactive water resource management across all our operational areas. Over the past year, we have undertaken a critical evaluation of our performance against the WRMP, identifying challenges, celebrating progress, and setting clear priorities for improvement.

We remain fully accountable for meeting the supply-demand balance obligations and acknowledge the issues encountered in areas such as leakage at Upper Rissington and data anomalies in Oaklands. While some of these stem from legacy infrastructure and third-party developments, Albion Water is proactively addressing them through legal, technical, and operational channels. We have initiated targeted leakage reduction programs, improved monitoring capabilities through Power BI analytics, and remain engaged in regulatory and legislative efforts to unlock innovative solutions like dual supply and non-potable water systems.

We are also committed to deepening our customer engagement and educational outreach, recognizing that long-term demand management is a shared responsibility.

Our campaigns will continue to promote water efficiency, conservation behaviours, and understanding of the value of clean water in daily life.

A strategic goal of the Board of Albion is to align Albion with a capital partner to more quickly enable more investment in infrastructure resilience, data quality improvements and customer service innovation.

Albion Water remains dedicated to operating with integrity, delivering environmental and commercial value, and maintaining compliance with all regulatory expectations.

We view the challenges of today as opportunities for growth and innovation and will continue to work collaboratively with stakeholders, developers, regulators, and our communities to ensure a secure and sustainable water future.

Adam Shore

Managing Director

10 WRMP Programme

Although there are improvements since the last reporting year there are still some key areas for Albion Water to address. The focus for the next reporting year is detailed below in table 2.

10.1 AR 2023/24 Actions update

Table 5 - Annual key milestones forecast 2024/25

Deliverable	Site/DMA	Detail	Comments	Action Date
Leakage reduction	Rissington	Non-potable network to be investigated and reactive works completed by Vistry Homes.	See Para 3.4	March 2025
Customer Services Application	General	New customer service platform to be implemented.		Completed
		New App for customer billing to go live.		
Data Reviews	General	Manage data reviews at a management level.		Completed
		Implement a reporting platform using Power Bi		
Incumbent engagement	General	Have a key Albion Water focal point to attend drought groups, liaise with incumbents.		Ongoing

10.2 AR 2025/26 Looking Forward Key Actions

Table 6 - Annual key milestones forecast 2025/26

Deliverable	Site/DMA	Detail	Comments	Action Date
Leakage reduction	Rissington	Non-potable network to be investigated and reactive works completed by Vistry Homes.	See Para 3.4	March 2026
Data Reviews	Rissington – More strategic data collection either by manual readings and listening or via cello situated at various strategic locations. Oaklands – Work with the incumbent and billing teams to remove any anomalies and uncertainty within data reads.	Identify/locate meters and replace and recharge developer Work with Essex and Suffolk to identify any possible bypass valves or secondary supplies. Utilise WRc for data validation and improvement on dashboards.		April 2026

10.3 AR 2025/2026 Looking Forward WRc Recommendations

Table 7 - WRc Recommendations

#	Recommendation	Priority	Comments
1	Review the bulk import meters in terms of specification (causes of flow disturbance), meter age and type, meter right sizing.	High	To ensure that the flow measurement feeding the site is accurate.
2	Depending on the bulk import meter type at Oaklands, working with NWL where appropriate in terms of asset ownership, investigate the meter performance itself e.g. if mechanical meter undertake physical checks or meter mechanisms and consider swapping the mechanism and/or meter. If electromagnetic undertake diagnostics.	High	To check for any issues such as partial blockage of meter mechanisms or identify if there has been degradation of the meter mechanism, or if electromagnetic ensure the meter is functioning correctly including checking earthing is appropriate etc.
3	Undertake a robust investigation of area integrity including checking all boundary valves and consider undertaking a pressure zero test (PZT) at night to confirm the zonal integrity.	High	A PZT undertaken at night is strongly recommended and results should be recorded at the target point (highest elevation) using a pressure logger and pressure gauge to ensure it drops to zero when the inlet is isolated. A hydrant may need to be operated to test the area in case leakage is genuinely very low, to prove the integrity of the area through the test.
4	Undertake pressure logging for at least one week using 1 minute average recording, at the inlet, target/critical point and average zonal point (somewhere geographically central at around the average elevation) at a time of non-extreme weather (not extremely hot or cold).	Medium	This will improve the reporting accuracy of leakage through the bottom-up estimate as it will enable the hour-day factor to be calculated and will also enable Albion Water to review any potential scope for pressure management to reduce leakage in the future.
5	Carry out a study into household night use either through using smart meter data, night time meter readings of "fast logging" of the bulk supply import meters.	High	Improving data with a specific dataset for household night use will greatly improve the estimation of bottom-up leakage.
6	Establish improvements in monitoring	High	Improvements in using the 15-minute data are required to set up a simple bottom-up leakage calculation and ensuring that staff understand how to interpret data and identify issues in a timelier manner.
7	Improve the process for making interventions – be this in relation to data accuracy/area integrity or in proactively finding leakage.	High	Ensuring that find and fix resources can be utilised in a timely manner to follow up on any issues that require leakage investigation.
8	Record data in relation to any supply pipe leakage either identified through meter/smart meter data, active leakage control and ensure any known leaks are recorded in terms of volume and duration.	Medium	To improve the understanding of leakage between distribution leakage and supply pipe leakage in the water balance.
9	Following implementation of recommendations 1 to 8, report leakage using a post MLE water balance if the water balance gap is +/- 5% or using a robust top down estimation if the water balance gap is not within acceptable limits.	Medium	For 2025/26 reporting to ensure improvements in data quality link through to regulatory reporting requirements.
10	Ensure that there is ongoing tracking of occupancy and voids as PCC will be sensitive to changes such as holiday periods and with changes in the level of voids. Consider undertaking surveys or questionnaires to ensure the occupancy estimates are appropriate.	Medium	Improvements in data and understanding will help to ensure that the level of PCC is well understood and can inform management decisions. ¹

