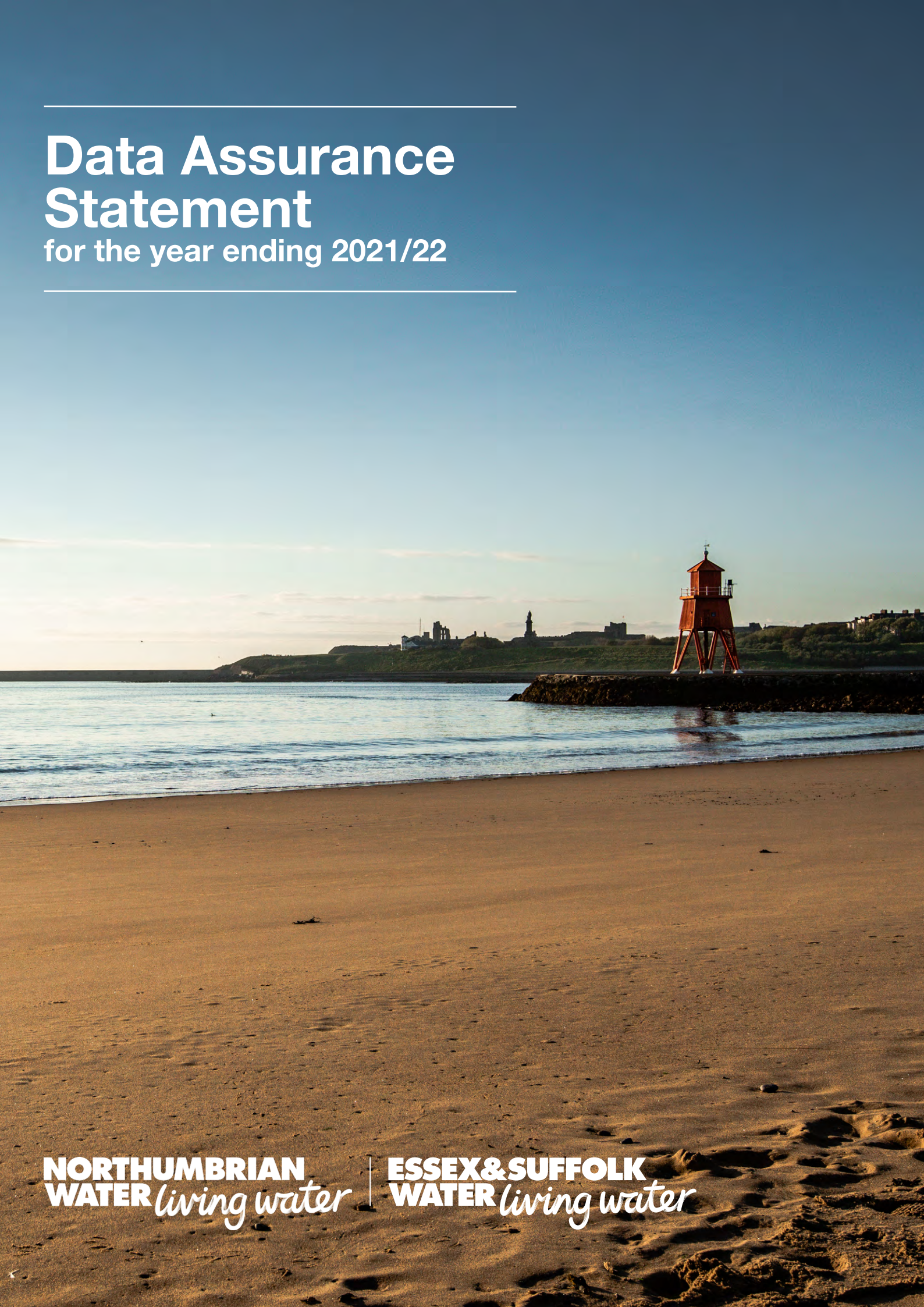
Data Assurance Statement

for the year ending 2021/22



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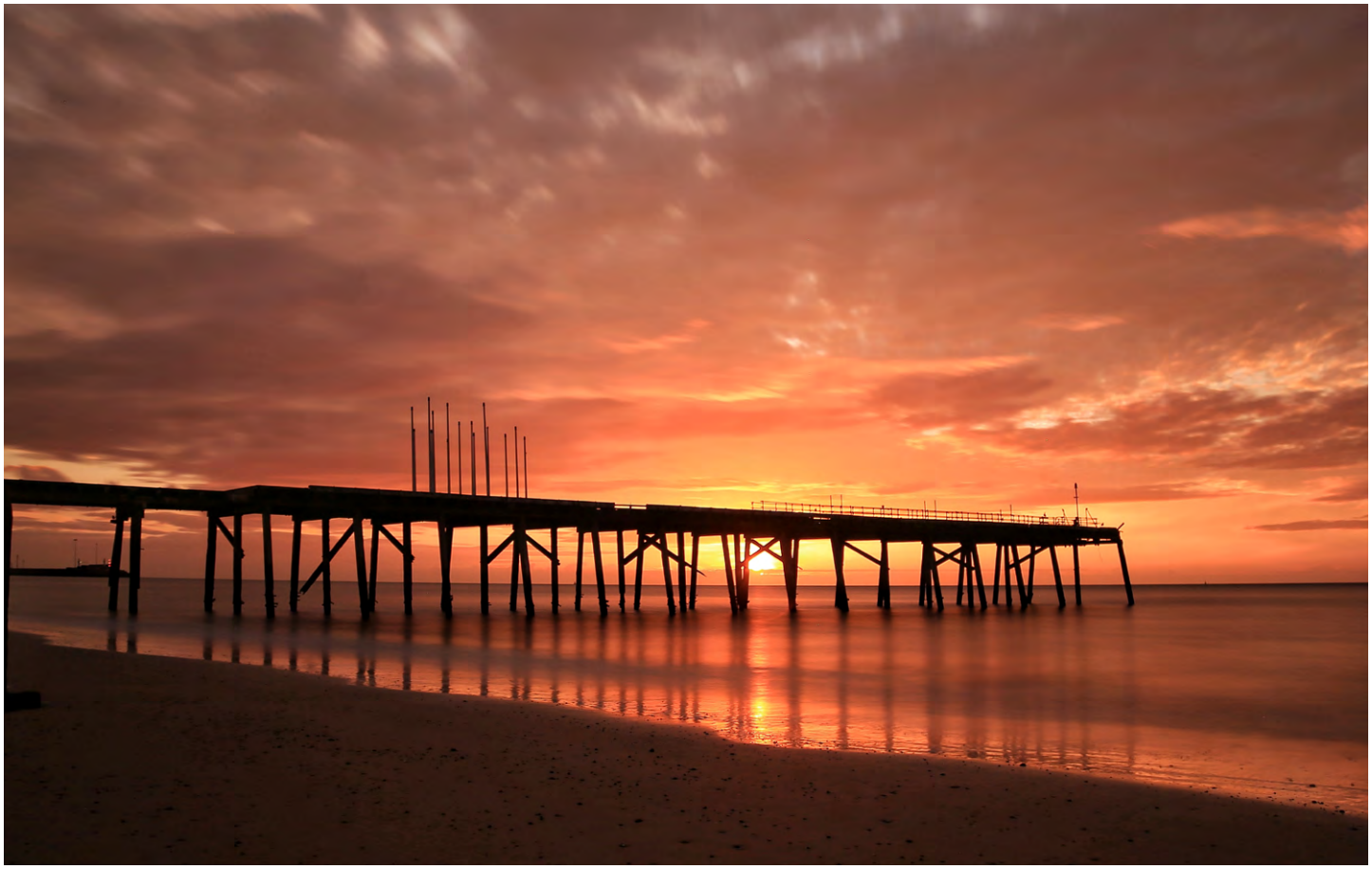
About this document

We publish a range of information about our services and performance, including how we are performing against the commitments we've made in our business plans. This helps to assure our customers and stakeholders that we're delivering what they've told us they need and want from Northumbrian Water and Essex & Suffolk Water.

It's important that we have robust assurance arrangements to make sure this information is accurate, clear, and transparent. This is essential to building and maintaining a high level of trust and confidence with our customers and stakeholders.

In March 2022, following consultation with customers and stakeholders, we published our **Assurance Plan for 2022/23**. This document firstly assessed any strengths, risks and weaknesses associated with either meeting our obligations and commitments or providing information of appropriate quality. It then detailed the checks, or assurance, we planned to carry out to address these risks and make sure we remain on track.

A significant proportion of this assurance aims to make sure the information we publish in our **Annual Performance Report (APR)** is of the right quality. This assurance update is published alongside our APR and summarises the outcome of this assurance.



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Summary of our assurance approach

This section describes how our governance and assurance arrangements are used to make sure the information we provide can be trusted.

The diagram on **page 5** illustrates the tiers of assurance within this framework, including:

Board Oversight

The Board has ownership of the arrangements for governance and assurance of regulatory submissions and reporting. This is monitored and controlled through the Board's Audit Committee and Risk & Compliance Sub-committee, which report regularly to the Board.

Risk Management

We use a data risk assessment, and our strengths, risks, and weaknesses review, to determine levels of risk and target assurance activity. This is a robust and mature process and is embedded within the company's risk activity. The Board sets the tone for risk management, determines the appropriate risk appetite, monitors the management of fundamental risk, and approves major decisions affecting the company's risk profile.

Management Assurance

Our Executive Leadership Team (ELT) implements the Board's strategies and closely monitors performance. This includes making sure sufficient and suitable resources (human and financial) are applied to scrutinise performance and identify and manage risk. It also makes sure there is appropriate assignment of responsibilities, corporate structures and reporting lines and accountabilities, supported by annual positive assurances on systems and controls.

Business Assurance

We have many teams that are separate from the operational activities, which monitor, capture, and manage the data we report. For example, Intelligence and Analytics, Information Systems Security, and Health, Safety, Environment and Quality. This also includes our Internal Audit Team. Accountable directly to the Audit Committee, the team provides strong, independent assurance. As such, their remit sits across this tier and the following one.

Independent Assurance

Our business assurance teams are supplemented with external specialist providers where we require technical and/or external assurance. In November 2017, we appointed PricewaterhouseCoopers LLP (PwC) as our external technical assurers. PwC's assurance practice is the largest in the UK and will provide both leadership and industry leading best practice when it comes to delivering assurance activities. We engaged PwC to carry out technical assurance work on various non-financial performance areas for our Annual Performance Reporting 2021/22. PwC has carried out work as a limited assurance engagement, in accordance with the International Standard on Assurance Engagements 3000 (Revised) ["ISAE 3000"], issued by the International Auditing and Assurance Standards Board. The scope and link to conclusions from PwC's assurance activities on our Annual Performance Report for 2021/22 can be found **here**.

Our Independent financial auditors, Deloitte, have audited the Regulatory Accounting Statements in our APR for the year ended 31 March 2022. This comprises the regulatory financial reporting tables 1A to 1E plus lines 1 to 9, 13, 19 and 21 to 23 of table 1F and the regulatory price review and other segmental reporting tables.

Deloitte's audit work is in accordance with International Standards on Auditing (UK), including ISA (UK) 800, and applicable law and having regard to the guidance contained in ICAEW Technical Release Tech 02/16 AFF 'Reporting to Regulators on Regulatory Accounts' issued by the Institute of Chartered Accounts in England and Wales. Their full report can be found in the Annual Performance Report **here**.

Assurance framework

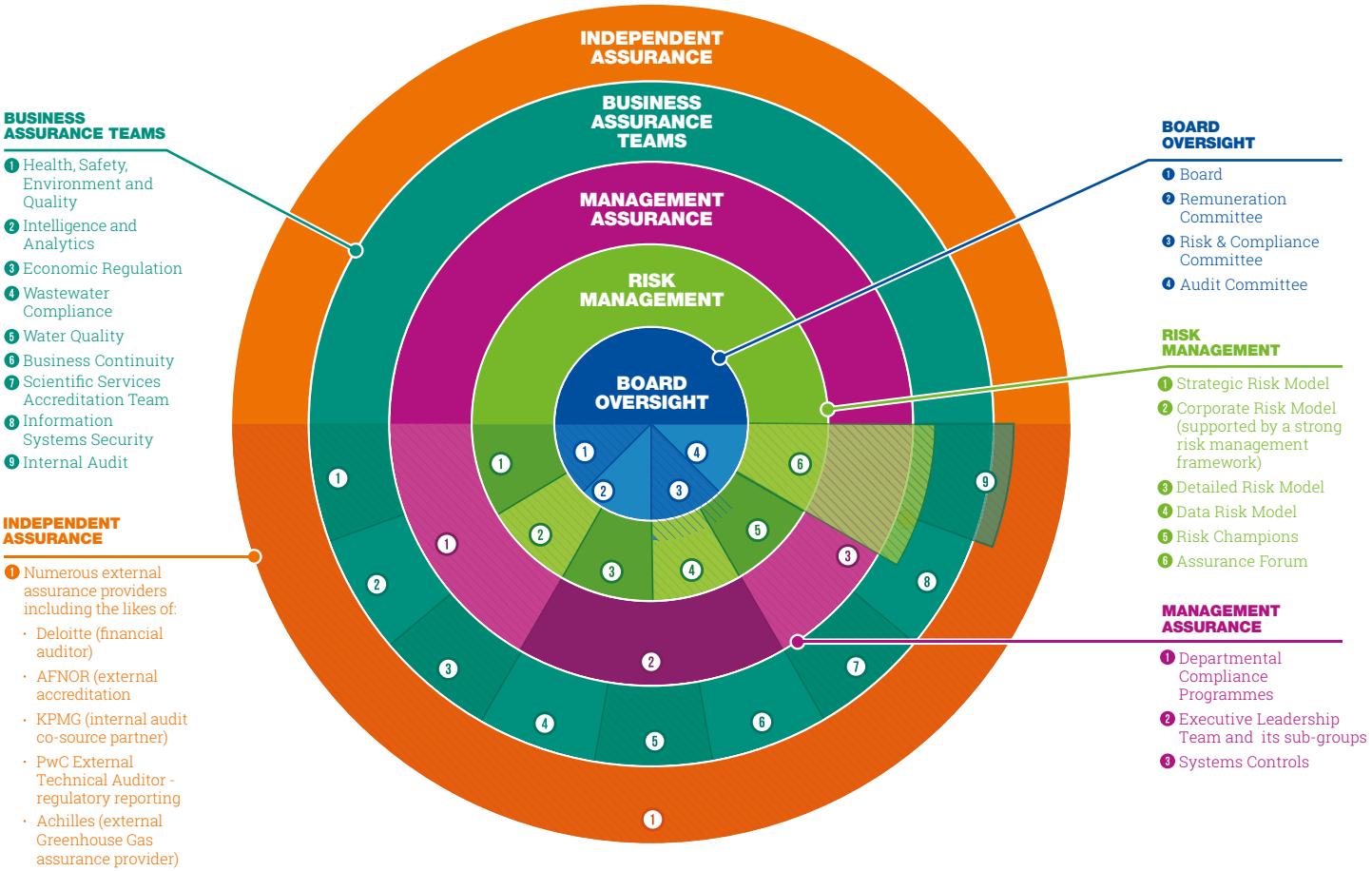
This assurance framework was applied to our 2020-25 Business Plan and enabled our Board to satisfy itself that the information associated with the development of our Performance Commitments (PCs) was robust.

We apply the same framework to the information needed to report our performance against these commitments.

A critical part of this assurance framework is our approach to risk, which includes the following steps:

- Understanding how data for each measure of success is managed from the point at which it is collected in the field, through the way it is collated to appear on a final report.
- Applying a formal risk assessment to each measure of success. This reviews:
  - The likelihood of a reporting error due to the complexity of a performance measure and how the data is collected.
  - The impact if an error should occur, particularly on customers' trust and confidence, financial incentives, and our reputation.
  - The effectiveness of our data quality controls (which are rated as good, acceptable, or ineffective) – including those which are procedural, audit based, or built into our IT systems.

Figure 1: Our Assurance Framework



How we identify areas of strength, risk and weakness

Our approach to identifying strengths, risks and weaknesses is based on an internal review and external engagement.

Internal review

We conduct an internal review to identify any risks associated with providing information of appropriate quality or meeting our performance commitments. The results of previous assurance and audit activities are a valuable input into this exercise, as are robust processes to track progress against delivery of our performance commitments that highlight the need to make further interventions as and when required.

This is further strengthened by the Board and Audit Committee that has reviewed our assessment of strengths, risks and weaknesses and Draft Assurance Plan. Our external assurance provider, PricewaterhouseCoopers (PwC), has provided independent input to this review in connection with their assurance service when they have identified areas where our approach is inconsistent with best practice. Feedback from all these parties has been reflected in this document.

As a regulated business, we have a duty to operate within a framework that aligns the interests of our customers, stakeholders, and shareholders with statutory duties. Through Acts of Parliament and European Directives, legislation is in place covering all areas of our business including water supply, sewerage services, drinking water quality, environmental standards, customer service, flood and drought protection as well as the welfare of our employees and customers.

We review and monitor compliance with these obligations on a regular basis and report each year in our Annual Performance Report that the company has a full understanding of, and is meeting, its obligations. This requires our Board to confirm that it has satisfied itself that the company has sufficient processes and internal systems of control to fully meet those obligations.

External review

Continuous customer and stakeholder engagement

The relationships we have with our customers and key stakeholders are very important. We actively engage with them to provide assurance that we are meeting expectations and to maintain trust and confidence. Our key stakeholders in this context are:

- Our Customers.
- The Water Forum (Customer Challenge Groups).
- CCWater – The voice for water consumers.
- Ofwat.
- The Drinking Water Inspectorate (DWI).
- The Environment Agency (EA).
- Natural England.
- Local Authorities.
- Business and Environmental Groups.
- Regional, Trade and National Media.
- Elected Representatives, Members of Parliament and Political Parties.
- Government Departments.

Engagement is achieved through regular conversations and performance review meetings with these stakeholders; understanding their expectations relating to performance, data reporting and communications, while being open to constructive feedback.

Our customers are at the heart of everything we do, the services we provide are essential for life and wellbeing, and our customers should always have trust and confidence in what we do. Assurance that we are delivering the services that our customers and stakeholders need and want begins with an extensive programme of customer research, participation, and engagement to gain insights about their views and priorities.

We continually engage with our customers and stakeholders to assure them that we are meeting their expectations and to maintain their trust and confidence. Our goal is to give every single customer the opportunity to have a strong voice and engage with us, with at least two million customers participating by 2025.

We carry out a programme of bespoke research and engagement activity around strategic aspects of service, including operations, inclusivity, charges, and the future. This is complemented by regular customer research activity to understand trends in satisfaction, monitor the success of campaigns and understand our customers' priorities.

In the last year restrictions to manage the spread of COVID-19 have impacted how, when, where and why we engage with our customers, and we've made sure the activities we put the most effort into continue to add value and make a positive impact.

While continuing to deliver critical water and wastewater services, we've seen a lot of our customers embrace digital technologies in new and different ways. We took the opportunity to engage more digitally – using technologies like WhatsApp, Zoom, Teams, Vyn, Facebook and other platforms to talk with customers, and share ideas and thinking.

We hope that there will always be a place for face-to-face customer engagement. However, quickly moving to make sure our customers could reach us in new and emerging ways was key to keeping dialogues going.

Benchmarking ourselves against others is a key part of making sure that we are delivering the right services, in particular helping to identify any areas where we may need to improve, or to adopt any best practices from elsewhere in the industry, or beyond.

Effective benchmarking is only possible if robust comparative information is available. **Discover Water** makes it easy for customers and stakeholders to view industry comparative performance information. We make full use of this comparative information as part of our engagement activities, enabling our customers and stakeholders to provide a more informed view of their future requirements.

Feedback from our customer and stakeholder research and engagement, alongside other insight, is provided to our Board, ELT and Water Forum on a regular basis. Our ELT and Independent Non-Executive Directors are regular attendees at customer engagement events and Water Forum meetings.

The Water Forum is the name of our Customer Challenge Group, who are an independent group of industry regulators, subject experts, and independent members.

Specific engagement findings for our 2021/22 assurance plan

Our customers

Our Consultation on Strengths, Risks and Weaknesses and Draft Assurance Plan was published on 14 February 2022 and closed on 28 February 2022. This included publishing a shorter version of our Draft Assurance Plan, then emailing more than half a million of our customers to invite them to complete an online survey. 83 customers were also informed about the consultation through our social media channels and 16 members of our HaveYourSay online community of customers took part by invitation. Our customer participation report is available **here**.

We were delighted to receive more than 8,400 responses from our customers and our Water Forum containing rich qualitative insights, as well as quantitative feedback.

65% understood our plan and said it made them feel informed.

83% were confident that the information we publish in 2022/23 will be correct and true.

83% said we are a company they trust.

More than 1,000 customers and stakeholders suggested further information that we could include in the plan, which we have used to inform this Assurance Plan. These included:

- More detail on our environmental work and on discharges to the environment from our activities, how it is reported and future plans and investment. We have added a link to our website here where more information is available;
- More information on what we are doing to minimise leakage and burst that lead to loss of supply and speed of repair;
- How they can reduce bills and the financial and practical support we offer;
- How we are financed as a privately owned company and how we report on our financial performance and performance commitments.
- In response, we've included a link to Our Finances Explained and How we are Performing page which includes our Annual Performance Report and Annual Report, and
- More information about drinking water quality in their local areas, including water type (hard/soft) and the chemicals used and why.

Our stakeholders

We continuously engage with external stakeholders, through regular conversations and performance reviews. We invited stakeholders to feed back on our consultation on our strengths, risks and weaknesses and our Draft Assurance Plan. Most of the feedback we received was from our Water Forum. In response to comments from Forum members we have:

- Included a section on page 27 in relation to our focus on call waiting times;
- Further content on maintaining affordability on page 18, and
- A short section on learning from incidents and events on page 23.
- We will also ensure that these areas get due focus in this years APR.

In advance of next years assurance plan we will also conduct a more comprehensive review of our approach to assessing risks, strengths and weaknesses in light of the facthat this document is no longer a regulatory requirement. This will include a more holistic look at how we assess longer term risks and any other areas that are potentially in the public interest. We will also review our approach to consultation in line with this.

Our strengths, risks and weaknesses

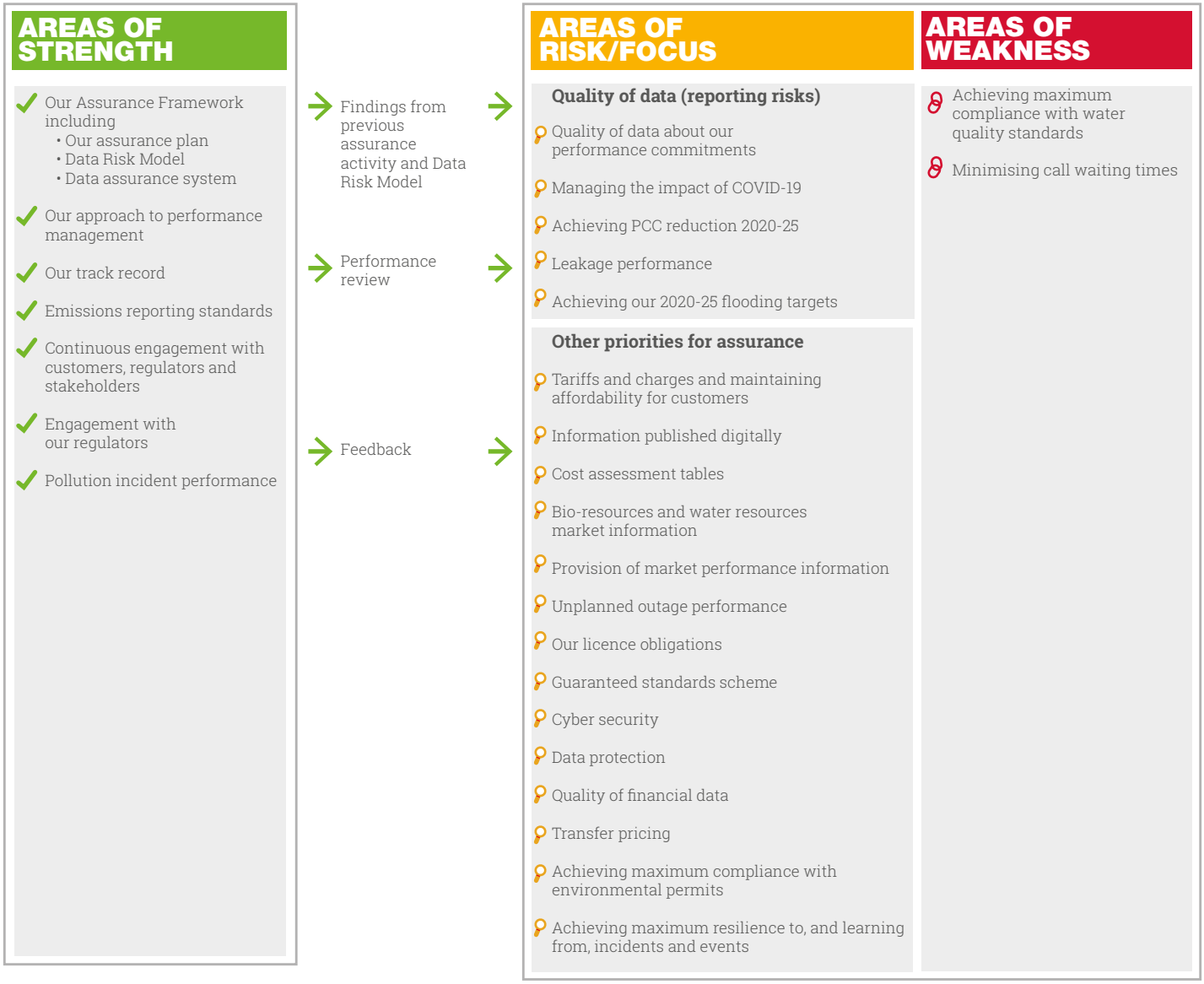
The diagram below summarises the strengths, risks, and weaknesses we identified relating to:

- Delivering our regulatory obligations and the performance commitments we made to customers and stakeholders in our new 2020-25 Business Plan.
- Providing quality information to customers and stakeholders so they can hold us to account.

As this is the start of a new five-year regulatory period, we thoroughly reviewed our risks, strengths and weaknesses against the stretching commitments in our latest Business Plan, which has resulted in more amber 'areas of risk/focus'. This is to be expected at this point in the regulatory cycle and is consistent with our commitment to improving our services. It does not imply that our services to customers face more risk.

Each area's categorisation depends on their level of risk and their importance to our customers and stakeholders. For more detail on each area, please see our **Assurance Plan for 2021/22**.

Figure 2: Our view on our areas of strengths, risks and weakness



Our Assurance Plan 2021/22 shared full details of our Strengths, Risks, and Weaknesses. The rest of this document focuses on our priorities for Data Assurance. Going forward please see our **Assurance Plan for 2022/23** which was published in March 2021.

The following tables focus on the assurance we had planned to make sure we're adequately managing data assurance and the information published in our Annual Performance Report is of the right quality. The right-hand column indicates the assurance completed and the findings.

To be completely transparent and open, we've included a section on the financial reporting assurance that is applied to our Annual Performance Report and Regulatory Accounts by Deloitte.

Our Final Assurance Plan details our risk-based approach for assuring this data, including a breakdown of specific assurance activities for each measure of success, along with assurance providers. Details are provided in the following Data Assurance Summary tables.

Our governance and assurance processes are embedded into the management and culture of the company and are designed to make sure risks are promptly identified, updated on a regular basis and appropriate mitigation prioritised to meet the risk appetite.

We also use our risk based approach to ensure that an appropriate balance of varied assurance providers are selected. These include our own Internal Audit Team as well as external technical assurance by PwC and financial assurance provision by Deloitte.

In general, areas of risk that already form part of our annual or cyclic audit activity are assured by our Internal Audit Team. For example, assurance of the Guaranteed Standards Scheme (GSS) entails coverage across many processes and systems (e.g. Interruptions to water supply, sewer flooding) and we therefore include these in the Internal Audit Team's annual assurance programme.

Newly emerging areas of risk are assured by our external auditors, PwC. Similarly, areas of risk that require a more technical approach (e.g. leakage) also form part of PwC's agreed assurance programme.

Our financial auditor, Deloitte, provides independent audit and assurance on financial reporting in our **Annual Report and Financial Statements** and our **Annual Performance Report**.

Quality of data relating to measures of success and performance commitments for 2021/22

Area of risk	NWL's planned assurance activity 2021/22	Assurance findings / response
Customer measure of experience (C-Mex) This is an Ofwat common definition. C-MeX is a mechanism to incentivise excellent levels of service for residential customers. Each company receives a C-MeX score based on results from two surveys. These are a customer service survey and a customer experience survey. A company's overall score is out of 100.	Our Internal Audit Team will confirm understanding of the reporting process for C-MeX by performing interviews, walkthroughs and evidence inspection. Our Internal Audit Team will ascertain how regulatory guidance for reporting this measure has been interpreted and assess whether it is appropriate. Test procedures by our Internal Audit Team will agree data back to underlying systems as well as sample testing to verify that it has been appropriately measured, recorded, collated and reported. Testing will take into account the accuracy and completeness of the reported data.	Our Internal Audit Team carried out a system audit and successfully reviewed final year end performance data. Results from the systems audit highlighted recommendations to improve processes. The actions are reported to Management and Audit Committee and monitored until completion by our Internal Audit Team. There is no detrimental effect on the quality of the final year performance data reported in our APR.
Developer services measure of experience (D-Mex) This is an Ofwat common definition. D-MeX is a mechanism to incentivise companies to provide developer services customers with excellent leves of service. These customers include small and large property developers, self-lay providers, new appointees and some residential customers. Each company receives a D-MeX score based on two components - qualitative and quantitative surveys. These are a customer service survey and a customer experience survey. A company's overall score is out of 100.	Our Internal Audit Team will confirm understanding of the reporting process for D-MeX by performing interviews, walkthroughs and evidence inspection. Our Internal Audit Team will ascertain how regulatory guidance for reporting this measure has been interpreted and assess whether it is appropriate. Test procedures by our Internal Audit Team will agree data back to underlying systems as well as sample testing to verify that it has been appropriately measured, recorded, collated and reported. Testing will take into account the accuracy and completeness of the reported data.	Our Internal Audit Team carried out a system audit and successfully reviewed final year end performance data. Results from the systems audit highlighted recommendations to improve processes. The actions are reported to Management and Audit Committee and monitored until completion by our Internal Audit Team. There is no detrimental effect on the quality of the final year performance data reported in our APR.

Area of risk	NWL's planned assurance activity 2021/22	Assurance findings / response
Water quality compliance (CRI) This is an Ofwat common definition. The Compliance Risk Index (CRI) is a measure designed to illustrate the risk arising from treated water compliance failures. It aligns with the approach taken by DWI. A CRI score is calculated for every individual compliance failure.	NWL will obtain independent assurance from PwC in relation to a number of non-financial performance areas including CRI. Within the work performed by PwC in reaching its conclusion over the Selected Information as a whole, the procedures that impact CRI will include: • Re-performing calculations performed by management based on central records • Inspecting detailed breakdowns of each of the data points recorded within the Selected Information • Obtaining and inspecting underlying documentary evidence on a sample basis • Inspecting corporate systems which store data relevant to the Selected Information • Checking for consistency between data points with common inputs • Inspecting third party or publicly available data and tracing this back to Northumbrian Water Limited's records	PwC performed independent assurance procedures in relation to specific water quality compliance performance information. The independent assurance report, including the assurance opinion, can be found on page 38.
Interruptions to supply greater than three hours. This is an Ofwat common definition. This measure the performance of companies in terms of the average number of minutes lost per customer for the whole customer base for interruptions that lasted three hours or more.	Our Internal Audit Team will confirm understanding of the reporting process for interruptions to supply by performing interviews, walkthroughs and evidence inspection. Our Internal Audit Team will ascertain how regulatory guidance for reporting this measure has been interpreted and assess whether it is appropriate. Test procedures by our Internal Audit Team will agree data back to underlying systems as well as sample testing to verify that it has been appropriately measured, recorded, collated and reported. Testing will take into account the accuracy and completeness of the reported data. We will apply particular scrutiny that the impact of Arwen on Interruptions ODIs is reflected in a way consistent with the guidance.	Our Internal Audit Team carried out a system audit and successfully reviewed final year end performance data. Results from the systems audit highlighted recommendations to improve processes. The actions are reported to Management and Audit Committee and monitored until completion by our Internal Audit Team. There is no detrimental effect on the quality of the final year performance data reported in our APR.

Area of risk	NWL's planned assurance activity 2021/22	Assurance findings / response
Leakage This is an Ofwat common definition. This measure enables all companies to report annual average leakage for the defined year. Average annual leakage is defined as the sum of distribution system leakage, including service reservoir losses and trunk main leakage plus customer supply pipe leakage. It is reported as the annual arithmetic mean daily leakage expressed in mega-litres per day (Ml/d).	NWL will obtain independent assurance from PwC in relation to a number of non-financial performance areas including leakage. Within the work performed by PwC in reaching its conclusion over the Selected Information as a whole, the procedures that impact leakage will include: • Re-performing calculations performed by management based on central records • Inspecting detailed breakdowns of each of the data points recorded within the Selected Information • Obtaining and inspecting underlying documentary evidence on a sample basis • Inspecting corporate systems which store data relevant to the Selected Information • Checking for consistency between data points with common inputs • Inspecting third party or publicly available data and tracing this back to Northumbrian Water Limited's records	PwC performed independent assurance procedures in relation to leakage performance information. The independent assurance report, including the assurance opinion, can be found on **page 38**.
Per capita consumption (PCC) This is an Ofwat common definition. PCC allows companies to report annual average per capita consumption for the defined year following a reasonable level of accuracy, applying consistent and reliable methods and common assumptions. Annual average per capita consumption is the sum of measured household consumption and unmeasured household consumption divided by the total household population. This is reported at the whole company level for this PC.	NWL will obtain independent assurance from PwC in relation to a number of non-financial performance areas including PCC. Within the work performed by PwC in reaching its conclusion over the Selected Information as a whole, the procedures that impact PCC will include: • Re-performing calculations performed by management based on central records • Inspecting detailed breakdowns of each of the data points recorded within the Selected Information • Obtaining and inspecting underlying documentary evidence on a sample basis • Inspecting corporate systems which store data relevant to the Selected Information • Checking for consistency between data points with common inputs • Inspecting third party or publicly available data and tracing this back to Northumbrian Water Limited's records	PwC performed independent assurance procedures in relation to PCC performance information. The independent assurance report, including the assurance opinion, can be found on **page 38**.

Area of risk	NWL's planned assurance activity 2021/22	Assurance findings / response
Pollution incidents This is an Ofwat common definition. The Environmental Performance Assessment (EPA) was introduced in 2011 and updated in February 2017. There was some adjustments to wording in version 3 in 2019. This measures the total number of pollution incidents (category 1 - 3) in a calendar year emanating from a discharge or escape of a contaminant from a company sewerage asset affecting the water environment. We report the total number of pollution incidents (cat 1-3) per 10,000km of sewer length.	NWL will obtain independent assurance from PwC in relation to a number of non-financial performance areas including pollution incidents. Within the work performed by PwC in reaching its conclusion over the Selected Information as a whole, the procedures that impact pollution incidents will include: • Re-performing calculations performed by management based on central records • Inspecting detailed breakdowns of each of the data points recorded within the Selected Information • Obtaining and inspecting underlying documentary evidence on a sample basis • Inspecting corporate systems which store data relevant to the Selected Information • Checking for consistency between data points with common inputs • Inspecting third party or publicly available data and tracing this back to Northumbrian Water Limited's records	PwC performed independent assurance procedures in relation to pollution incidents performance information. The independent assurance report, including the assurance opinion, can be found on **page 38**.
Risk of severe restrictions in a drought This is an Ofwat common definition. The drought resilience metric measures the percentage of the customer population the company serves who are at risk of experiencing severe restrictions (for example, standpipes or rota cuts) in a 1 in 200 year drought, on average, over 25 years.	NWL will obtain independent assurance from PwC in relation to a number of non-financial performance areas including severe restrictions in a drought. Within the work performed by PwC in reaching its conclusion over the Selected Information as a whole, the procedures that impact severe restrictions in a drought will include: • Re-performing calculations performed by management based on central records • Inspecting detailed breakdowns of each of the data points recorded within the Selected Information • Obtaining and inspecting underlying documentary evidence on a sample basis • Inspecting corporate systems which store data relevant to the Selected Information • Checking for consistency between data points with common inputs • Inspecting third party or publicly available data and tracing this back to Northumbrian Water Limited's records	PwC performed independent assurance procedures in relation to risk of severe restrictions in a drought performance information. The independent assurance report, including the assurance opinion, can be found on **page 38**.

Area of risk	NWL's planned assurance activity 2021/22	Assurance findings / response
Mains repairs This is an Ofwat common definition. Companies report mains bursts repairs per 1,000km of mains. Mains bursts include all physical repair work to mains from which water is lost. This is attributable to pipes, joints or joint material failures or movement, or caused by conditions or original pipe laying or subsequent changes in ground conditions.	Our Internal Audit Team will confirm understanding of the reporting process for unplanned outage by performing interviews, walkthroughs and evidence inspection. Our Internal Audit Team will ascertain how regulatory guidance for reporting this measure hasbeen interpreted and assess whether it is appropriate. Test procedures by our Internal Audit Team will agree data back to underlying systems as well as sample testing to verify that it has been appropriately measured, recorded, collated and reported. Testing will take into account the accuracy and completeness of the reported data.	Our Internal Audit team carried out a system audit and successfully reviewed final year end performance data. Results from the systems audit highlighted recommendations to improve processes. The actions are reported to Management and Audit Committee and monitored until completion by our Internal Audit Team. There is no detrimental effect on the quality of the final year performance data reported in our APR.
Unplanned outage This is an Ofwat common definition. The measure is used as a means of assessing asset health for abstraction and water treatment activities. It is defined as the annualised unavailable flow, based on the peak week production capacity (PWPC) for each company.	NWL will obtain independent assurance from PwC in relation to a number of non-financial performance areas including unplanned outage. Within the work performed by PwC in reaching its conclusion over the Selected Information as a whole, the procedures that impact unplanned outage will include: • Re-performing calculations performed by management based on central records • Inspecting detailed breakdowns of each of the data points recorded within the Selected Information • Obtaining and inspecting underlying documentary evidence on a sample basis • Inspecting corporate systems which store data relevant to the Selected Information • Checking for consistency between data points with common inputs • Inspecting third party or publicly available data and tracing this back to Northumbrian Water Limited's records	PwC performed independent assurance procedures in relation to unplanned outage performance information. The independent assurance report, including the assurance opinion, can be found on **page 38**.
Sewer collapses This is an Ofwat common definition. It measures the number of sewer collapses per 1,000km of all sewers that have not been identified proactively by the company and causing an impact on service to customers or the environment.	Our Internal Audit Team will confirm understanding of the reporting process for unplanned outage by performing interviews, walk throughs and evidence inspection. Our Internal Audit Team will ascertain how regulatory guidance for reporting this measure has been interpreted and assess whether it is appropriate. Test procedures by our Internal Audit Team will agree data back to underlying systems as well as sample testing to verify that it has been appropriately measured, recorded, collated and reported. Testing will take into account the accuracy and completeness of the reported data.	Our Internal Audit team successfully carried out a review of the final year end performance data. No material issues were identified during the audit.

Area of risk	NWL's planned assurance activity 2021/22	Assurance findings / response
Treatment works compliance This is an Ofwat common definition. This measures performance of sewerage assets to treat and dispose of sewage in line with the discharge permit conditions imposed on sewage treatment works. The discharge permit compliance metric is reported as the number of failing sites and not the number of failing discharges.	NWL will obtain independent assurance from PwC in relation to a number of non-financial performance areas including treatment works compliance. Within the work performed by PwC in reaching its conclusion over the Selected Information as a whole, the procedures that impact treatment works compliance will include: • Re-performing calculations performed by management based on central records • Inspecting detailed breakdowns of each of the data points recorded within the Selected Information • Obtaining and inspecting underlying documentary evidence on a sample basis • Inspecting corporate systems which store data relevant to the Selected Information • Checking for consistency between data points with common inputs • Inspecting third party or publicly available data and tracing this back to Northumbrian Water Limited's records	PwC performed independent assurance procedures in relation to treatment works compliance performance. The independent assurance report, including the assurance opinion, can be found on **page 38**.
Priority services register – reach This is an Ofwat common definition. The PSR measures the number of households on the company's PSR as a proportion of all households in the company's region. In order to meet the performance commitment, companies must comply with two criteria on data checking: 1. Companies will attempt to make contact with a minimum of 45% households on the PSR in the first year and 90% of households every two years of subsequent years to 2025. 2. Companies will need to ensure that details, including any change in circumstances, are reconfirmed for at least 17.5% of households in the first year and 35% of households every two years for all subsequent years to 2025.	Our Internal Audit Team will confirm understanding of the reporting process for the priority services register by performing interviews, walkthroughs and evidence inspection. Our Internal Audit Team will ascertain how regulatory guidance for reporting this measure has been interpreted and assess whether it is appropriate. Test procedures by our Internal Audit Team will agree data back to underlying systems as well as sample testing to verify that it has been appropriately measured, recorded, collated and reported. Testing will take into account the accuracy and completeness of the reported data.	Our Internal Audit Team successfully carried out a review of the final year end performance data. No material issues were identified during the audit.

Area of risk	NWL's planned assurance activity 2021/22	Assurance findings / response
Satisfaction of customers who receive additional non-financial support This measures the customer satisfaction score of customers who receive non-financial support through the PSR. This performance measure applies to households only. The score will be determined from a telephone survey where customers who are on the PSR are asked to rate their overall satisfaction with the PSR services the company provides. Customers score their satisfaction with the company's performance between one and ten, with a greater score indicating a greater level of satisfaction. 1,000 customers will be surveyed throughout the year to provide an annual score.	Our Internal Audit Team will verify customer survey numbers used for publishing are consistent with the customer surveys carried out by our accredited external organisations and recognised industry bodies.	Our Internal Audit Team confirmed that the results from the satisfaction survey were consistent with the customer surveys carried out by our accredited external research partner.
Satisfaction of customers who receive additional financial support This measures the customer satisfaction score of customers who receive additional financial support through one of the company's SupportPLUS tariffs or WaterSure. This performance measure applies to households only. The score will be determined from a telephone survey where customers who are receiving financial support for either water arrears or ongoing charges are asked to rate their overall satisfaction with the services the company provides. Customers score their satisfaction with the company's performance between one and ten, with a greater score indicating a greater level of satisfaction. 1,000 customers will be surveyed throughout the year to provide an annual score.	Our Internal Audit Team will verify customer survey numbers used for publishing are consistent with the customer surveys carried out by our accredited external organisations and recognised industry bodies.	Our Internal Audit Team confirmed that the results from the satisfaction survey were consistent with the customer surveys carried out by our accredited external research partner.
Awareness of additional non-financial support The percentage of household customers who, when asked, have awareness of the company's additional nonfinancial support service, the PSR. The annual calculation is (total number of customers who answer yes / total number of customers surveyed) x 100. The measure is determined annually through market research conductedby an external third party used to determine if customers are aware of the PSR. The higher the percentage score, the better the performance. The score is based on a telephone survey to ask customers if they are aware of the PSR that the company can offer to those customers who need extra support. Customers score their awareness with a yes/no answer.	Our Internal Audit Team will verify customer survey numbers used for publishing are consistent with the customer surveys carried out by our accredited external organisations and recognised industry bodies.	Our Internal Audit Team confirmed that the results from the satisfaction survey were consistent with the customer surveys carried out by our accredited external research partner.

Area of risk	NWL's planned assurance activity 2021/22	Assurance findings / response
Awareness of additional financial support The percentage of household customers who have awareness of the company's additional financial support services. This includes customers that are signed up to one of the company's SupportPLUS tariffs or WaterSure. The score is based on a telephone survey to ask customers if they are aware of the additional financial support services that the company can offer to customers who need extra support. This includes the company's SupportPLUS tariffs and WaterSure. Customers score their awareness with a yes/no answer. 2,000 customers are surveyed annually (500 quarterly) and the results are presented as an annual % of awareness.	Our Internal Audit Team will verify customer survey numbers used for publishing are consistent with the customer surveys carried out by our accredited external organisations and recognised industry bodies.	Our Internal Audit Team confirmed that the results from the satisfaction survey were consistent with the customer surveys carried out by our accredited external research partner.
Response time to written complaints This is the annual average time taken to respond to written complaints in working days. The duration to respond to a complaint is from the date of receipt into the business to the date a response is issued. This measure uses the CCWater definition of a written complaint, which covers complaints by post, email, web or fax. The company will align with any changes to the definition by CCWater.	Our Internal Audit Team will confirm understanding of the reporting process for written complaints by performing interviews, walk throughs and evidence inspection. Our Internal Audit Team will ascertain how regulatory guidance for reporting this measure has been interpreted and assess whether it is appropriate. Test procedures by our Internal Audit Team will agree data back to underlying systems as well as sample testing to verify that it has been appropriately measured, recorded, collated and reported. Testing will take into account the accuracy and completeness of the reported data.	Our Internal Audit Team successfully carried out a review of the final year end performance data. No material issues were identified during the audit.
Visible leak repair time This measure is the average number of calendar days that it takes to find and fix visible leaks reported to us by customers. This is measured over the April to March year. A customer report of a visible leak will be recorded at the time the contact with the company started in the company's corporate systems. Once the leak is found and then the job to fix the leaking pipe is completed, the time and date of the completion will also be recorded in the company's systems. The difference between the two gives the time taken to repair the leak. The CMA has confirmed that this measure excludes leaks on customer owned supply pipes.	NWL will obtain independent assurance from PwC in relation to a number of non-financial performance areas including visible leak repair time. Within the work performed by PwC in reaching its conclusion over the Selected Information as a whole, the procedures that impact visible leak repair time will include: • Re-performing calculations performed by management based on central records • Inspecting detailed breakdowns of each of the data points recorded within the Selected Information • Obtaining and inspecting underlying documentary evidence on a sample basis • Inspecting corporate systems which store data relevant to the Selected Information • Checking for consistency between data points with common inputs • Inspecting third party or publicly available data and tracing this back to Northumbrian Water Limited's records.	PwC performed independent assurance procedures in relation to visible leak repair time performance. The independent assurance report, including the assurance opinion, can be found on **page 38**.

Area of risk	NWL's planned assurance activity 2021/22	Assurance findings / response
Customers' perception of trust The 'mean' customer satisfaction score out of ten based on a quarterly independent customer tracking survey. The survey covers only household customers and consists of 500 completed interviews each quarter, a total of 2,000 interviews annually. The sample size should be selected to give a reasonable statistical significance for the purpose of the performance commitment.	Our Internal Audit Team will verify customer survey numbers used for publishing are consistent with the customer surveys carried out by our accredited external organisations and recognised industry bodies.	Our Internal Audit Team confirmed that the results from the satisfaction survey were consistent with the customer surveys carried out by our accredited external research partner.
Percentage of households in water poverty Percentage of households spending more than 3% of their disposable income on their water and sewerage charges, after housing costs. The measurement calculation is (number of households whose bill > 3% of income / total number of households) x 100. The number of total households is the number of connected households held within the company's billing databases. The database will be validated against income values to identify those in water poverty using credit reference data.	Our Internal Audit Team will confirm understanding of the reporting process for assessing the percentage of households in water poverty by performing interviews, walkthroughs and evidence inspection. Our Internal Audit Team will ascertain how regulatory guidance for reporting this measure has been interpreted and assess whether it is appropriate. Test procedures by our Internal Audit Team will agree data back to underlying systems as well as sample testing to verify that it has been appropriately measured, recorded, collated and reported. Testing will take into account the accuracy and completeness of the reported data.	Our Internal Audit Team successfully carried out a review of the final year end performance data. No material issues were identified during the audit.
Gap sites The percentage of properties on the Valuation Office Rating list which have been matched to our corporate database of connected non-household properties. Those which don't match are investigated as gap sites. The number of properties on the VOA rating list which have been matched to the company's corporate database (ie are connected and either classified as void or billed) as a percent of the total number of properties on this list. The number of properties on the VOA rating list which have been matched to the company's corporate database (ie are connected and either classified as void or billed) as a percent of the total number of properties on this list.	Our Internal Audit Team will confirm understanding of the reporting process for gap sites by performing interviews, walkthroughs and evidence inspection. Our Internal Audit Team will ascertain how regulatory guidance for reporting this measure has been interpreted and assess whether it is appropriate. Test procedures by our Internal Audit Team will agree data back to underlying systems as well as sample testing to verify that it has been appropriately measured, recorded, collated and reported. Testing will take into account the accuracy and completeness of the reported data.	Our Internal Audit Team successfully carried out a review of the final year end performance data. No material issues were identified during the audit.

Area of risk	NWL's planned assurance activity 2021/22	Assurance findings / response
Voids The number of household properties classified as void as a percentage of the total number of household properties served by the company. Void properties are defined as properties, within the company's supply area, which are connected for either a water service only, a wastewater service only or both services but do not receive a charge, as there are no occupants Additionally, a property connected for both services that is not occupied, only counts as one void property. The proportion of void properties will be measured as an average over the year. The same method to calculate the average will be used each year.	NWL will obtain independent assurance from PwC in relation to a number of non-financial performance areas including voids. Within the work performed by PwC in reaching its conclusion over the Selected Information as a whole, the procedures that impact voids will include: • Re-performing calculations performed by management based on central records • Inspecting detailed breakdowns of each of the data points recorded within the Selected Information • Obtaining and inspecting underlying documentary evidence on a sample basis • Inspecting corporate systems which store data relevant to the Selected Information • Checking for consistency between data points with common inputs • Inspecting third party or publicly available data and tracing this back to Northumbrian Water Limited's records	PwC performed independent assurance procedures in relation to void property performance information. The independent assurance report, including the assurance opinion, can be found on **page 38**.
Interruptions to supply greater than 12 hours This measure is a count of the total number of properties that experience an interruption of 12 hours (or more) in each year. All properties interrupted that are identified through the common measure (interruptions greater than three hours) that are impacted for 12 hours or more are recorded.	Our Internal Audit Team will confirm understanding of the reporting process for interruptions to supply greater than 12 hours by performing interviews, walkthroughs and evidence inspection. Our Internal Audit Team will ascertain how regulatory guidance for reporting this measure has been interpreted and assess whether it is appropriate. Test procedures by our Internal Audit Team will agree data back to underlying systems as well as sample testing to verify that it has been appropriately measured, recorded, collated and reported. Testing will take into account the accuracy and completeness of the reported data. We will apply particular scrutiny that the impact of Arwen on Interruptions ODIs is reflected in a way consistent with the guidance.	Our Internal Audit Team carried out a system audit and successfully reviewed final year end performance data. Results from the systems audit highlighted recommendations to improve processes. The actions are reported to Management and Audit Committee and monitored until completion by our Internal Audit Team. There is no detrimental effect on the quality of the final year performance data reported in our APR.

Area of risk	NWL's planned assurance activity 2021/22	Assurance findings / response
Discoloured water contacts The number of customer contacts of discoloured water – brown/orange/black recorded in a calendar year in line with DWI information letter IL01/2006. The number of times the company is contacted by consumers due to drinking water not being clear, reported per 10,000 population. The calculation is the number of contacts for appearance multiplied by 10,000 divided by the resident population as reported to the DWI.	NWL will obtain independent assurance from PwC in relation to a number of non-financial performance areas including discoloured water contacts. Within the work performed by PwC in reaching its conclusion over the Selected Information as a whole, the procedures that impact discoloured water contacts will include: • Re-performing calculations performed by management based on central records • Inspecting detailed breakdowns of each of the data points recorded within the Selected Information • Obtaining and inspecting underlying documentary evidence on a sample basis • Inspecting corporate systems which store data relevant to the Selected Information • Checking for consistency between data points with common inputs • Inspecting third party or publicly available data and tracing this back to Northumbrian Water Limited's records	PwC performed independent assurance procedures in relation to discoloured water contacts performance information. The independent assurance report, including the assurance opinion, can be found on **page 38**.
Taste and smell contacts The number of customer contacts of taste and smell (odour) of drinking water recorded in a calendar year in line with DWI information letter IL01/2006. This is reported per 10,000 people. The number of times the company is contacted by consumers due to the taste and odour of drinking water, reported per 10,000 population. Calculation is the number of contacts for all taste and odour contacts multiplied by 10,000 divided by the resident population as reported to the DWI.	NWL will obtain independent assurance from PwC in relation to a number of non-financial performance areas including taste and smell contacts. Within the work performed by PwC in reaching its conclusion over the Selected Information as a whole, the procedures that impact taste and smell contacts will include: • Re-performing calculations performed by management based on central records • Inspecting detailed breakdowns of each of the data points recorded within the Selected Information • Obtaining and inspecting underlying documentary evidence on a sample basis • Inspecting corporate systems which store data relevant to the Selected Information • Checking for consistency between data points with common inputs • Inspecting third party or publicly available data and tracing this back to Northumbrian Water Limited's records	PwC performed independent assurance procedures in relation to taste and smell contacts performance information. The independent assurance report, including the assurance opinion, can be found on **page 38**.

Area of risk	NWL's planned assurance activity 2021/22	Assurance findings / response
Event risk index (ERI) The Drinking Water Inspectorate (DWI) monitor water company water quality events through the event risk index. This index measures water company response to water quality events. The Event Risk Index (ERI) is a measure of the risk arising from water quality events, as defined by the DWI.	NWL will obtain independent assurance from PwC in relation to a number of non-financial performance areas including ERI. Within the work performed by PwC in reaching its conclusion over the Selected Information as a whole, the procedures that impact ERI will include: • Re-performing calculations performed by management based on central records • Inspecting detailed breakdowns of each of the data points recorded within the Selected Information • Obtaining and inspecting underlying documentary evidence on a sample basis • Inspecting corporate systems which store data relevant to the Selected Information • Checking for consistency between data points with common inputs • Inspecting third party or publicly available data and tracing this back to Northumbrian Water Limited's records	PwC performed independent assurance procedures in relation to ERI performance information. The independent assurance report, including the assurance opinion, can be found on **page 38**.
Interruptions to supply between one and three hours Percentage that the average time the water supply is interrupted is greater than one hour and less than three hours in the report year as a proportion of the baseline. The baseline is the average of the years 2018-19, 2019-20 and 2020-21. This bespoke measure aligns with the common interruptions measure but is calculated for all interruptions above one hour and less than three hours.	Our Internal Audit Team will confirm understanding of the reporting process for interruptions to supply between one and three hours by performing interviews, walk throughs and evidence inspection. Our Internal Audit Team will ascertain how regulatory guidance for reporting this measure has been interpreted and assess whether it is appropriate. Test procedures by our Internal Audit Team will agree data back to underlying systems as well as sample testing to verify that it has been appropriately measured, recorded, collated and reported. Testing will take into account the accuracy and completeness of the reported data. We will apply particular scrutiny that the impact of Arwen on Interruptions ODIs is reflected in a way consistent with the guidance.	Our Internal Audit Team carried out a system audit and successfully reviewed final year end performance data. Results from the systems audit highlighted recommendations to improve processes. The actions are reported to Management and Audit Committee and monitored until completion by our Internal Audit Team. There is no detrimental effect on the quality of the final year performance data reported in our APR.

Area of risk	NWL's planned assurance activity 2021/22	Assurance findings / response
Risk of sewer flooding in a storm This is an Ofwat common definition. This measure requires companies to report on the risk of sewer flooding during an extreme wet weather event for the defined year. The metric is based on some complex information. This measure will record the percentage of the regions population at risk from internal hydraulic flooding from a 1 in 50 year storm.	Our Internal Audit Team will confirm understanding of the reporting process for risk of sewer flooding in a storm by performing interviews, walk throughs and evidence inspection. Our Internal Audit Team will ascertain how regulatory guidance for reporting this measure has been interpreted and assess whether it is appropriate. Test procedures by our Internal Audit Team will agree data back to underlying systems as well as sample testing to verify that it has been appropriately measured, recorded, collated and reported. Testing will take into account the accuracy and completeness of the reported data.	Our Internal Audit Team successfully carried out a review of the final year end performance data. No material issues were identified during the audit.
Sewer flooding risk reduction This measure counts the number of properties where we have proactively reduced the risk of internal and/or external sewer flooding. A reduction in risk will be counted towards the measure when the risk to a property reduces by at least one level between risk bands.	Our Internal Audit Team will confirm understanding of the reporting process for sewer flooding risk reduction by performing interviews, walkthroughs and evidence inspection. Our Internal Audit Team will ascertain how regulatory guidance for reporting this measure hasbeen interpreted and assess whether it is appropriate. Test procedures by our Internal Audit Team will agree data back to underlying systems as well assample testing to verify that it has been appropriately measured, recorded, collated and reported. Testing will take into account the accuracy and completeness of the reported data.	Following the Final Determination (FD) by Ofwat and subsequent Competition and Markets Authority (CMA) process, sewer flooding risk reduction is no longer a performance commitment and data will not be collected for APR purposes.

Area of risk	NWL's planned assurance activity 2021/22	Assurance findings / response
Sewer blockages The total number of sewer blockages on the company's sewer network (including sewers transferred in 2011) in a reporting year. A blockage is an obstruction in a sewer which causes a reportable problem (not caused by hydraulic overload), such as flooding or discharge to a watercourse, unusable sanitation, surcharged sewers or odour. The company will not include proactively cleaned silt or other blockages that are removed which are not reported to it by customers or stakeholders and have no customer impact. The company will include blockages that are as a result of thirdparty interference.	Our Internal Audit Team will confirm understanding of the reporting process for sewer blockages by performing interviews, walkthroughs and evidence inspection. Our Internal Audit Team will ascertain how regulatory guidance for reporting this measure has been interpreted and assess whether it is appropriate. Test procedures by our Internal Audit Team will agree data back to underlying systems as well as sample testing to verify that it has been appropriately measured, recorded, collated and reported. Testing will take into account the accuracy and completeness of the reported data.	Our Internal Audit Team successfully carried out a review of the final year end performance data. No material issues were identified during the audit.
External sewer flooding This measures the absolute number of the company's external sewer flooding incidents per year including incidents caused by severe weather. External flooding is defined as flooding within the curtilage of a building normally used for residential, public, community and business purposes. Flooding event is defined as the escape of water from a sewerage system, irrespective of size as evidenced by standing water, running water or visible deposits of silt or sewage solids. It includes flooding due to overloaded sewers (hydraulic flooding) and due to other causes (FOC). Number of incidents is defined as the number of curtilages flooded during each flooding event from a public sewer including incidents on sewers transferred under the Transfer of Private Sewers Regulations 2011 and pumping stations transferred in 2016. Severe weather is defined as individual rainfall events with a storm return period greater than 1 in 20 years. Flooding incidents caused by severe weather should be included in this measure.	Our Internal Audit Team will confirm understanding of the reporting process for external sewer flooding by performing interviews, walk throughs and evidence inspection. Our Internal Audit Team will ascertain how regulatory guidance for reporting this measure has been interpreted and assess whether it is appropriate. Test procedures by our Internal Audit Team will agree data back to underlying systems as well as sample testing to verify that it has been appropriately measured, recorded, collated and reported. Testing will take into account the accuracy and completeness of the reported data.	Our Internal Audit Team carried out a system audit and successfully reviewed final year end performance data. Results from the systems audit highlighted recommendations to improve processes. The actions are reported to Management and Audit Committee and monitored until completion by our Internal Audit Team. There is no detrimental effect on the quality of the final year performance data reported in our APR.

Area of risk	NWL's planned assurance activity 2021/22	Assurance findings / response
Repeat sewer flooding The number of internal sewer flooding incidents in properties which have flooded internally more than once in the last five years. It includes flooding from the public and transferred network and includes severe weather events. Repeat flooding incidents are defined as internal flooding more than once within a five-year period. This is calculated as five years prior to the most recent flooding incident, i.e. if an incident occurred on 24 April 2018, the company would check back to and include 25 April 2013 to determine if this classed as a repeat for this measure. A flooding incident is the escape of water from a sewerage system, irrespective of size as evidenced by standing water, running water or visible deposits of silt or sewage solids. Any flooding due to jetting is included, unless the water is fully contained within a toilet bowl. Flooding due to third party action shall be included in all cases.	Our Internal Audit Team will confirm understanding of the reporting process for repeat sewer flooding by performing interviews, walk throughs and evidence inspection. Our Internal Audit Team will ascertain how regulatory guidance for reporting this measure has been interpreted and assess whether it is appropriate. Test procedures by our Internal Audit Team will agree data back to underlying systems as well as sample testing to verify that it has been appropriately measured, recorded, collated and reported. Testing will take into account the accuracy and completeness of the reported data.	Our Internal Audit Team carried out a system audit and successfully reviewed final year end performance data. Results from the systems audit highlighted recommendations to improve processes. The actions are reported to Management and Audit Committee and monitored until completion by our Internal Audit Team. There is no detrimental effect on the quality of the final year performance data reported in our APR.
Abstraction incentive mechanism (AIM) The abstraction incentive mechanism (AIM) reduces abstraction of water at environmentally sensitive sites when flow or levels are below an agreed point otherwise known as a trigger. The trigger point is based on a level or flow, below which the AIM is considered to be 'switched on'. This trigger will usually be related to the point at which damage is caused and is intended to prevent this from happening or ameliorate the negative impacts.	NWL will obtain independent assurance from PwC in relation to a number of non-financial performance areas including AIM. Within the work performed by PwC in reaching its conclusion over the Selected Information as a whole, the procedures that impact AIM will include: • Re-performing calculations performed by management based on central records • Inspecting detailed breakdowns of each of the data points recorded within the Selected Information • Obtaining and inspecting underlying documentary evidence on a sample basis • Inspecting corporate systems which store data relevant to the Selected Information • Checking for consistency between data points with common inputs • Inspecting third party or publicly available data and tracing this back to Northumbrian Water Limited's records	PwC performed independent assurance procedures in relation to AIM performance information. The independent assurance report, including the assurance opinion, can be found on **page 38**.

Area of risk	NWL's planned assurance activity 2021/22	Assurance findings / response
Bathing water compliance The percentage of designated bathing waters in the company's northern operating area which are classified as Good or Excellent status each year, as reported by Defra. The classifications are based on a four-year average of sample results at each beach.	NWL will obtain independent assurance from PwC in relation to a number of non-financial performance areas including bathing water compliance. Within the work performed by PwC in reaching its conclusion over the Selected Information as a whole, the procedures that impact bathing water compliance will include: • Re-performing calculations performed by management based on central records • Inspecting detailed breakdowns of each of the data points recorded within the Selected Information • Obtaining and inspecting underlying documentary evidence on a sample basis • Inspecting corporate systems which store data relevant to the Selected Information • Checking for consistency between data points with common inputs • Inspecting third party or publicly available data and tracing this back to Northumbrian Water Limited's records	PwC performed independent assurance procedures in relation to bathing waters performance information. The independent assurance report, including the assurance opinion, can be found on **page 38**.
Water environment improvements Length of publicly accessible water environment in kilometres in the reporting year which has had improvements delivered across at least two aspects of access, facilities and recreation, water quality, wildlife and biodiversity. Each of these aspects of the water environment has an associated length measured in kilometres. The length of water environment enhanced as measured under this performance commitment will relate to lengths of publicly accessible water environment areas in the company's regions where improvements have been delivered in the year.	The assurance process for this ODI can be found **here**. Independent Water Environment Governance Group (WEGG) will provide a statement confirming that this process has been followed, and that the corresponding length/km of improvements reported is correct. Our internal audit team will provide further checks of the same.	Our Internal Audit Team were taken through the assurance process that has been developed in conjunction with the new Water Environment Governance Group (WEGG). This group is a regulatory group closely linked to our Water Forum, with three shared members and a joint but independent sub-group chair. Internal Audit consider the processes in place to be very robust and the levels of assurance from both our internal governance and the WEGG is such that there is a very high degree of confidence in the accuracy of reporting for this measure.

Area of risk	NWL's planned assurance activity 2021/22	Assurance findings / response
Greenhouse gas emissions This measures the annual reductions in operational greenhouse gas emissions from a 2019-20 baseline expressed in tonnes CO2e (carbon dioxide equivalent). Emissions are calculated through the UK Water Industry Research Ltd (UKWIR) Carbon Accounting Workbook published on 8 May 2019. The company will provide external third party assurance that all data relating to operational greenhouse gas emissions is compliant with the version of the international carbon reporting standard (ISO 14064, Part 1) which is in effect at the time of PR19 final determinations publication, and assured following an audit by an appropriately qualified independent third party. For avoidance of doubt the scope of assurance excludes data sourced from the carbon accounting workbook. The scope of the assurance includes the 2019-20 baseline.	Our third-party external assurance partner, CEMARS will ensure that all data relating to operational greenhouse gas emissions is compliant with the version of the international carbon reporting standard (ISO 14064 Part 1). The scope of the assurance provision excludes data sourced from the carbon accounting workbook and includes the 2019-20 baseline. Any areas identified as not yet compliant will be noted and included in plans that set out actions and timescales to achieve compliance when reporting. In advance of our 2020/21 APR we requested that Ofwat permit is to report emissions using a newer version of the Carbon Accounting Workbook – which addresses a number of shortfalls in the May 2019 version. At the time of writing we are still awaiting a conclusion from Ofwat on this matter.	In the Final Determination to Companies dated December 2019, it was confirmed that assurance was to be provided externally by third party. This means that for operational carbon it includes that for all data collection relating to greenhouse gas emissions is compliant with the international carbon reporting standard (ISO 14064 Part 1) and a third part assure this. In line with CEMARS programme we have successfully met the scheme requirements and gained certification to CEMARS. The audit report findings can be found on **page 161** of this assurance summary.
Bioresources Percentage of the total amount of sludge, in tonnes dry solids (tDS), produced each year that has been effectively treated by an advanced sludge treatment process (Advanced Anaerobic Digestion) and beneficially recycled to land. The performance commitment will include sludge and organic wastes imported from other WaSCs or third parties that have been traded under the bioresources price control. The traded quantities of sludge would be added to the raw tDS figures treated and produced.	NWL will obtain independent assurance from PwC in relation to a number of non-financial performance areas including bioresources. Within the work performed by PwC in reaching its conclusion over the Selected Information as a whole, the procedures that impact bioresources will include: • Re-performing calculations performed by management based on central records • Inspecting detailed breakdowns of each of the data points recorded within the Selected Information • Obtaining and inspecting underlying documentary evidence on a sample basis • Inspecting corporate systems which store data relevant to the Selected Information • Checking for consistency between data points with common inputs • Inspecting third party or publicly available data and tracing this back to Northumbrian Water Limited's records	PwC performed independent assurance procedures in relation to bioresources performance information. The independent assurance report, including the assurance opinion, can be found on **page 38**.

Area of risk	NWL's planned assurance activity 2021/22	Assurance findings / response
British standards institution award for inclusive services This measure assesses the quality of the Priority Services scheme using the British Standard for Inclusive Service Provision certification BS 18477. To meet its targets for this performance commitment the company must maintain the BS 18477 standard throughout the 2020-2025 period. If this certification from BSI is not in place on 31 March of the reporting year, the performance commitment is reported as not maintained. The performance commitment applies each reporting year, and demonstration that the certification is in place must be tested and reported each reporting year. The BS 18477 certification is awarded by BSI Group (also known as the British Standards Institution).	There are no specific assurance requirements set out for this measure other than to confirm we have 'maintained' or 'not maintained' certification of BS18477.	Our Internal Audit Team confirmed sight of the certification of BS18477 showing that we had 'maintained' assessment.
Delivery of water resilience enhanced programme This performance commitment measures the delivery of the company's water resilience enhancement programme. Completion is determined on full completion of the respective milestones when the measures are in operation and providing clear benefit to customers. The required scope of the milestones are as set out by the company in submissions to Ofwat in advance of draft determinations.	For this measure, we are required to provide an assurance report at the next price review (PR24) from a third party assurance partner to: • Confirm that the scope expected to be delivered for each milestone is equivalent or greater to the required scope. • Confirm expected completion of each scheme and assesses any likely delay in any individual milestone beyond 31 March 2025.	Our Internal Audit Team successfully reviewed progress against the relevant milestones set out for this performance commitment. An appropriately qualified external third party assurance report is required at the next PR review.
Delivery of lead enhancement programme This performance commitment measures the percentage delivered of the company's lead enhancement programme. This is limited to delivering pipe replacements on the customer side (supply pipe) in the following categories; vulnerable groups, rural supplies, hotspots. To reflect the different unit costs involved with replacing lead pipes for these groups, each category has a different contribution to the overall scheme delivery measure. For the purposes of this performance commitment, no property can be counted in more than one category. Replacement of lead pipes covers all activities, including pipes whose long-term lead health risk is removed through the use of innovative technologies developed in the future and approved by the DWI.	Our Internal Audit Team will confirm understanding of the reporting process for the lead replacement programme by performing interviews, walk throughs and evidence inspection. Our Internal Audit Team will ascertain how regulatory guidance for reporting this measure has been interpreted and assess whether it is appropriate. Test procedures by our Internal Audit Team will agree data back to underlying systems as well as sample testing to verify that it has been appropriately measured, recorded, collated and reported. Testing will take into account the accuracy and completeness of the reported data.	Our Internal Audit Team successfully reviewed progress against the relevant milestones set out for this performance commitment.

Area of risk	NWL's planned assurance activity 2021/22	Assurance findings / response
Delivery of smart water metering enhancement programme This measures the percentage delivered of the company's smart metering programme. This is limited to installing new smart meters and replacing existing basic meters with smart meters. To reflect the different unit costs involved, each category has a different contribution to the overall scheme delivery measure. For the purposes of this performance commitment, no double counting is permitted between categories.	Our Internal Audit Team will confirm understanding of the reporting process for the smart metering programme by performing interviews, walk throughs and evidence inspection. Our Internal Audit Team will ascertain how regulatory guidance for reporting this measure has been interpreted and assess whether it is appropriate. Test procedures by our Internal Audit Team will agree data back to underlying systems as well as sample testing to verify that it has been appropriately measured, recorded, collated and reported. Testing will take into account the accuracy and completeness of the reported data.	Our Internal Audit Team successfully reviewed progress against the relevant milestones set out for this performance commitment.
Delivery wastewater resilience enhancement programme This covers the cumulative number of sites in the company's wastewater resilience enhancement programme where the required scope of flood mitigation work has been delivered. The programme measure covers 141 sewage treatment sites. The company will publish an Assurance Report in advance of the next price review from an appropriately qualified external third party.	For this measure, we are required to provide an assurance report at the next price review (PR24) from a third party assurance partner to: • Confirm that the scope expected to be delivered for each milestone is equivalent or greater to the required scope. • Confirm expected completion of each scheme and assesses any likely delay in any individual milestone beyond 31 March 2025.	Our Internal Audit Team successfully reviewed progress against the relevant milestones set out for this performance commitment. An appropriately qualified external third party assurance report is required at the next PR review.
Delivery of cyber resilience enhancement programme This performance commitment measures the delivery of the company's cyber resilience enhancement programme. The relevant milestones are: • Creation of a Security Operations Centre and incident management response capability. • Enhancing the company's cyber security function through various solutions. Delivery is determined by full completion of the respective milestones when the measures are in operation and providing clear benefit to customers.	Our Internal Audit Team will confirm understanding of the reporting process for the cyber resilience programme by performing interviews, walkthroughs and evidence inspection. Our Internal Audit Team will ascertain how regulatory guidance for reporting this measure has been interpreted and assess whether it is appropriate.	Our Internal Audit Team successfully reviewed progress against the relevant milestones set out for this performance commitment.

Area of risk	NWL's planned assurance activity 2021/22	Assurance findings / response
Delivery of Howdon STW enhancement This performance commitment measures the progress of the delivery of the company's Howdon STW expansion scheme. Progress will be expressed in the number of months delivered late. The scheme comprises of building new assets which will complement existing treatment processes on site at Howdon STW to accommodate future growth and also to build in redundancy when required to safeguard from loss of service now and into the future. Completion of the upgrades is scheduled for 2024-25.	We continue to monitor and review our delivery plans for this scheme, and in particular whether projected growth is materialising as expected. We are also checking whether the associated ODI appropriately incentivises the best outcome for customers in light of any variations in growth, and may request changes if this turns out not to be the case. The assurance requirements for this measure sets out that an independent report by a third party is published by July 2024 setting out the expected dates that all milestones will be functionally completed and successfully commissioned.	Our Internal Audit Team successfully reviewed progress against the relevant milestones set out for this performance commitment. An independent assurance report by a third party is required by July 2024.
NWL independent value for money survey The measures take the mean score of responses from household customers asked about their overall satisfaction with the service the company provides. The measure is the annual score from the 'value for money' question taken from this independent domestic customer survey. Customers score their satisfaction with performance between one and ten, and a greater score indicates a greater level of satisfaction. Two thousand customers will be surveyed throughout the year to provide an annual result. Five hundred interviews will be completed quarterly in line with the Market Research Society code of conduct.	Our Internal Audit Team will verify customer survey numbers used for publishing are consistent with the customer surveys carried out by our accredited external organisations and recognised industry bodies.	Our Internal Audit Team confirmed that the results from the satisfaction survey were consistent with the customer surveys carried out by our accredited external research partner.
Drainage and wastewater management plans (DWMPS) This covers the cumulative percentage of catchments in which Northumbrian Water operates, the company implements the Level 1 water company DWMP in accordance with the guideline: A framework for the production of Drainage and Wastewater Management Plans, published September 2018 and updated May 2019. The percentage will be calculated as a simple average of the catchments that are completed according to the guidelines and published divided by the total number of catchments and expressed as a percentage.	Our Internal Audit Team will confirm understanding of the reporting process for the DWMP by performing interviews, walk throughs and evidence inspection. Our Internal Audit Team will ascertain how regulatory guidance for reporting this measure has been interpreted and assess whether it is appropriate. Test procedures by our Internal Audit Team will agree data back to underlying systems as well as sample testing to verify that it has been appropriately measured, recorded, collated and reported. Testing will take into account the accuracy and completeness of the reported data.	Our Internal Audit Team successfully reviewed progress against the relevant milestones set out for this performance commitment.

Area of risk	NWL's planned assurance activity 2021/22	Assurance findings / response
Delivery of water industry national environment programme requirements This measure assesses whether or not the company 'met' or 'not met' all of its requirements for WINEP, in the reporting year. This measure tracks the completion of required schemes in each year, as per the latest WINEP programme published by DEFRA. If any scheme is not delivered by the time specified in the WINEP tracker titled 'Completion Date (DD/MM/YY)', the company will report 'not met'. All WINEP schemes will be included including those reported under other performance commitments. The performance commitment will measure against the latest WINEP tracker in the year in which performance is being reported. Therefore, performance for 2020-21 will be reported based on the latest WINEP programme on the 31 March 2021 and the schemes which have been delivered by this date.	The performance commitment will measure against the latest WINEP tracker in the year in which performance is being reported. Performance for 2020/21 will be reported based on the latest WINEP programme as of 31 March 2022 and the schemes that have been delivered by that date. The Environment Agency (EA) will confirm that performance has been correctly reported. We will set out our APR any areas that have not been met and include any interactions this performance measure has with any other performance measures.	Our Internal Audit Team successfully reviewed progress against the relevant milestones set out for this performance commitment. The EA provides confirmation that the performance has been correctly reported.
Water industry national environment programme (WINEP) The cumulative number of schemes completed each year. The performance commitment is limited to schemes that were confirmed on 1 April 2019 within the Water Industry National Environment Programme (WINEP) and therefore had green status. Each scheme completed by the company must be signed off by the Environment Agency for it to count towards the measure.	Each scheme completed by the company requires sign off by the Environment Agency (EA) in order for it to be counted towards the measure. We will secure confirmation from the EA that performance has been correctly reported. The view of the EA will be definitive.	Our Internal Audit Team successfully reviewed progress against the relevant milestones set out for this performance commitment. The EA provides confirmation that the performance has been correctly reported.

Area of risk	NWL's planned assurance activity 2021/22	Assurance findings / response
Cost assessment tables Since 2016, we have provided cost assessment tables to Ofwat which cover all aspects of performance, including financial and operational metrics. The cost assessment information helps inform Ofwat's cost modelling for the Periodic Review process. Our approach to providing governance and assurance to the cost assessment tables follows the same process as we currently have in place for Annual Performance Reporting (APR).	The scope of assurance activity across the cost assessment tables has been split between PwC and our Internal Audit Team. NWL will obtain independent assurance from PwC in relation to a number of non-financial performance areas including the cost assessment tables. Within the work performed by PwC in reaching its conclusion over the Selected Information as a whole, the procedures that impact the cost assessment tables will include: • Re-performing calculations performed by management based on central records • Inspecting detailed breakdowns of each of the data points recorded within the Selected Information • Obtaining and inspecting underlying documentary evidence on a sample basis • Inspecting corporate systems which store data relevant to the Selected Information • Checking for consistency between data points with common inputs • Inspecting third party or publicly available data and tracing this back to Northumbrian Water Limited's records For cost assessment tables allocated to our Internal Audit Team, they will confirm understanding of the reporting processes by performing interviews, walk throughs and evidence inspection. Our Internal Audit Team will ascertain how regulatory guidance for reporting the measures have been interpreted and assess whether they are appropriate. Test procedures by our Internal Audit Team will agree data back to underlying systems as well as sample testing to verify that these have been appropriately measured, recorded, collated and reported. Testing will take into account the accuracy and completeness of the reported data.	PwC performed independent assurance procedures in relation to the cost assessment tables allocated. The independent assurance report, including the assurance opinion, can be found on **page 38**. Our Internal Audit Team successfully carried out a review of the final year end performance data for their allocated cost assessment tables. No material issues were identified during the audit.
Tariffs and charges The bills paid by our customers and the wholesale charges paid by non-household customers in both our areas of supply are determined by the tariffs and charges published in January and February each year. We are required to publish our tariffs and charges to comply with our legal obligations. These set out the company's charges for the services we provide and the terms and conditions of those charges.	Our Internal Audit Team will confirm understanding of the reporting process for tariffs and charges by performing interviews, walk throughs and evidence inspection. Our Internal Audit Team will ascertain how regulatory guidance for reporting this measure has been interpreted and assess whether it is appropriate. Test procedures by our Internal Audit Team will agree data back to underlying systems as well as sample testing to verify that it has been appropriately measured, recorded, collated and reported. Testing will take into account the accuracy and completeness of the reported data.	Reviews of our tariffs and charges production were followed as per the timetable set out and approval was provided by our Charges Steering Group and Board. Assurance checks by an Independent firm of accountants were performed as set out in our programme. Assurance checks of allowed revenue and charge multiplier inputs by our Internal Audit Team resulted in no exceptions being reported.

Area of risk	NWL's planned assurance activity 2021/22	Assurance findings / response
Customer contact	As part of an annual assurance programme, our internal audit team reviews end to end processes and both financial and regulatory reporting controls in our key systems. This includes several audits of the Customer Contact and Billing system (CC&B) as it holds both key financial and regulatory data. For CC&B regulatory reporting, the key audits we carry out annually include GSS audits (particularly account queries and complaints and appointments) and C-MeX and priority services reporting which is included in our APR assurance programme. As for all audits, findings are reported to management and our audit committee, with agreed actions being tracked to completion.	Our Internal Audit Team carried out a review of customer contacts. This forms part of our annual audit programme and covers areas such as customer contact, complaints, and supply interruptions. Results from the audit highlighted recommendations to improve our processes. The actions are reported to Management and Audit Committee and monitored until completion by our Internal Audit Team. There is no detrimental effect on the quality of the final year performance data reported in our APR.
Bioresources and water resources market information Companies are required to provide Ofwat with standardised and defined information to enable potential market participants to identify opportunities to supply services in these areas. We publish market information so that stakeholders can have trust and confidence in the information and to reflect current market status.	Our Internal Audit Team will confirm understanding of the reporting process for bioresources and water resources market information by performing interviews, walk throughs and evidence inspection. Our Internal Audit Team will ascertain how regulatory guidance for reporting this measure has been interpreted and assess whether it is appropriate. Test procedures by our Internal Audit Team will agree data back to underlying systems as well as sample testing to verify that it has been appropriately measured, recorded, collated and reported. Testing will take into account the accuracy and completeness of the reported data.	Market information audits had not been completed at the time of the Assurance Summary publication and we will provide an update on this area of reporting in our draft assurance plan later in the autumn.
Market performance information The Market Performance Framework (MPF) is intended to provide confidence to trading parties and the Market Operator (MOSL) that they and their peers are complying with their obligations. The MPF consists of a number of elements that monitor and report performance against a range of predefined standards and timescales. These standards are the Market Performance Standards (MPS) and the Operational Performance Standards (OPS). The MPS measure both retailer and wholesaler performance, while the OPS solely measure wholesaler performance. We are required to submit key performance indicators to the market operator MOSL who then publish the information on their website. The information is used by retailers, Ofwat and MOSL to ensure service to all customers in the market is compliant.	Our Internal Audit Team will confirm understanding of the reporting process for market performance information by performing interviews, walk throughs and evidence inspection. Our Internal Audit Team will ascertain how regulatory guidance for reporting this measure has been interpreted and assess whether it is appropriate and in accordance with the Competition Act (level playing field provision). Test procedures by our Internal Audit Team will agree data back to underlying systems as well as sample testing to verify that it has been appropriately measured, recorded, collated and reported. Testing will take into account the accuracy and completeness of the reported data.	Market information audits had not been completed at the time of the Assurance Summary publication and we will provide an update on this area of reporting in our draft assurance plan later in the autumn.

Area of risk	NWL's planned assurance activity 2021/22	Assurance findings / response
Our licence obligations As part of our Risk and Compliance Statement we must make sure we have a full understanding of and are meeting all our relevant statutory license and regulatory obligations. We must also ensure that there are sufficient processes and internal systems of control to fully meet those obligations and have appropriate systems and processes in place to allow us to identify, manage and review key risks.	Our Internal Audit Team will confirm understanding of the reporting process for meeting our licence obligations by performing interviews, walk throughs and evidence inspection. Our Internal Audit Team will ascertain how regulatory guidance for reporting has been interpreted and assess whether it is appropriate. Additional focus will be placed on a review of our RAG5 procedures. Any recommendations from the review will be shared with our Executive Leadership Team and monitored through to completion.	Our Internal Audit Team review our licence obligations on a bi-annual basis given there has been no significant changes to them from their previous review last year. We will review and report further on these in our 2021-22 report.
Guaranteed standards scheme (GSS) Customers of water and sewerage companies are entitled to guaranteed minimum standards of service, as set out by the Secretary of State. Where a company fails to meet a standard then it is required to make a specified payment to the customer affected. The scheme applies to all customers of water and sewerage companies. Some companies operate schemes that go further than GSS. Following Ofwat's 'Out in the Cold' review of water companies' performance in response to the 'Beast from the East', they expressed concern that the compensation customers were getting was not enough. Ofwat made recommendations designed to address these concerns and expected companies to reflect on them when setting their own compensation schemes. We have acted on the recommendations made by Ofwat and have implemented changes to our GSS payments with effect from 1 October 2019. This involves changes to our systems for recording failures and the automation of payments to customers.	GSS by performing interviews, walk throughs and evidence inspection. Our Internal Audit Team will ascertain how regulatory guidance for reporting this measure has been interpreted and assess whether it is appropriate. Test procedures by our Internal Audit Team will agree data back to underlying systems as well as sample testing to verify that it has been appropriately measured, recorded, collated and reported. Testing will take into account the accuracy and completeness of the reported data. We will pay particular attention to GSS payments in relation to Storm Arwen.	Our Internal Audit Team carried out a review of GSS compliance. This forms part of their annual audit programme. Results from the audit highlighted recommendations to improve our processes. These are reported to the GSS Compliance Group and Audit Committee and agreed actions will be monitored until completion by our Internal Audit Team.
Data protection This measure was also highlighted by customers as a concern. Information about our customers and employees (personal data) is one of our most valuable assets. We include data protection as a Corporate 'Risk' and are committed to protecting privacy rights.	Our Information Access Team will continue to work closely with teams across the business to ensure processes and procedures are implemented with privacy in mind. They will also carry out 'spot' audits to ensure compliance. By continuing to use Privacy Impact Assessments, we will maintain good visibility of our data processing. Content security tools help provide the visibility we need to protect personal data. We will continue to focus on employee awareness of data protection. Ensuring all employees receive robust and up to date training embeds data protection across the business.	The Information Access Team ensured strong links are built with teams across the business. We have maintained the Data Protection Champions network in departments, our regular slots on leadership team meetings and monthly newsletters for teams to ensure privacy is regularly on the agenda. Due to the social restrictions in place during the global pandemic, and the temporary shift to widespread working from home, workplace spot audits have not been possible this year, although we maintained our engagement with the business to monitor and assess the compliance risks. Privacy Impact Assessments have been undertaken where required across the business to ensure privacy compliance is considered, privacy by design takes place, and identified risks are managed and mitigated where necessary.

Quality of financial data

We also have a number of financial areas where assurance is provided by our financial auditors, Deloitte. These are included in our Annual Report and Financial Statements and elements of our Annual Performance Report (APR).

Area of risk	NWL's planned assurance activity 2021/22	Assurance findings / response
Annual report and financial statements We have a legal obligation, under the Companies Act, for our Annual Report and Financial Statements to be externally audited. This is to make sure that they are properly prepared in accordance with Generally Accepted Accounting Principles and the Companies Act and that they represent a true and fair view of our financial position and profits.	Deloitte will audit and express an opinion on the financial statements in accordance with applicable law and International Standards on Auditing (UK and Ireland).	Deloitte carried out their audit and reported their findings to our Audit Committee. They produced an unqualified audit opinion which can be found in the Annual Report and Financial Statements on our **websites**.
Regulatory accounting statements We have a requirement under our Instrument of Appointment and Ofwat's Regulatory Accounting Guidelines, for the Regulatory Financial Statements in the APR to be externally audited. This covers: • The regulatory policiesand disclosures. • Regulatory Financial Statements (tables 1A to 1F). • Appointed business taxation. • Price review and other segmental reporting (tables 2A to 2O). • Transactions with associated companies.	Deloitte will audit and express an opinion on the financial statements in accordance with applicable law and International Standards on Auditing (UK and Ireland).	Deloitte carried out their audit and reported their findings to our Audit Committee. They produced an unqualified audit opinion which can be found in the Annual Report and Financial Statements on our **websites**.
Additional regulatory information We report additional regulatory information in sections 4 to 9 of the APR. This includes: • Non-financial information on households billed and volumes of water produced. • Additional analysis of totex and unit costs. • Key financial metrics.	Deloitte will carry out the agreed procedures which broadly comprise confirming that the information contained in the tables has been calculated in a consistent manner with Ofwat's Regulatory Accounting Guidelines, agreeing information back to supporting documentation and verifying the accuracy of calculations. For tables 4D to 4F Deloitte will also confirm that the information has been prepared in accordance with the Company's accounting separation methodology.	Deloitte carried out the agreed procedures. No exceptions were noted.

Area of risk	NWL's planned assurance activity 2021/22	Assurance findings / response
Statement of sufficiency of financial resources We have a requirement, under our Instrument of Appointment, to submit a certificate from the Directors stating that we have available sufficient financial resources and facilities to allow us to carry out our regulated activities for at least 12 months and sufficient management resources to enable us to carry out our functions.	Deloitte will carry out the agreed upon procedures. Deloitte will review the statement of sufficiency of financial resources and identify any inconsistencies between the statement and information obtained during its audit of the Regulatory Financial Statements.	Deloitte carried out the agreed procedures. They confirmed that no matters had come to their attention to indicate any inconsistency between this Statement and information obtained during the course of their audit work on the Regulatory Financial Statements, in respect of financial resources.
Financial resilience We have a requirement, under Ofwat's Regulatory Accounting Guidelines, to produce a long-term viability statement, confirming that the Company is financially viable over the longer term. This includes stress testing our forward-looking financial plans under a number of adverse scenarios. Our viability statement can be found in the Annual Report and Financial Statements on our **websites**.	Deloitte will carry out the agreed procedures to review the impact of the stress test scenarios on the Company's financial plan and key financial ratios.	Deloitte carried out the agreed procedures. No exceptions were noted.

Northumbrian Water Limited
Northumbria House
Abbey Road
Pity Me
Durham
DH1 5FJ

Independent Limited Assurance Report to the Directors of Northumbrian Water Limited on selected non-financial information within its Annual Performance Report* for the year ended 31 March 2022

The Board of Directors of Northumbrian Water Limited ("NWL") engaged us to obtain limited assurance on the selected non-financial information (together the "Subject Matter Information") as defined below, in NWL's Annual Performance Report* for the year ended 31 March 2022 (the "Report").

Our assurance conclusion does not extend to information in respect of earlier periods or to any other information included in, or linked from, the Report including any images, audio files or videos.

Our limited assurance conclusion

Based on the procedures we have performed, as described under the 'Summary of work performed as the basis for our assurance conclusion' and the evidence we have obtained, nothing has come to our attention that causes us to believe that the Subject Matter Information as defined below, in the Report for the year ended 31 March 2022, has not been prepared, in all material respects, in accordance with the Reporting Criteria set out in Appendix 1 of NWL's Data Assurance Summary 2021/22 and referenced in the 'Subject Matter Information and Reporting Criteria' section below.

Subject Matter Information and Reporting Criteria

The Subject Matter Information needs to be read and understood together with the Reporting Criteria, which NWL is solely responsible for selecting and applying. The Subject Matter Information and the Reporting Criteria are as set out in the table below:

Subject Matter Information	***Reporting Criteria***
Selected non-financial information contained within the Report for the year ended 31 March 2022, as outlined in Annex A of this Independent Limited Assurance Report (the "Subject Matter Information").	Appendix 1 of NWL's Data Assurance Summary 2021/22

Inherent limitations

The absence of a significant body of established practice on which to draw to evaluate and measure non-financial information allows for different, but acceptable, evaluation and measurement techniques that can affect comparability between entities and over time.

Non-financial performance information is subject to more inherent limitations than financial information, given the characteristics of the underlying subject matter and the methods used for determining such information. The precision of different measurement techniques may also vary.

Responsibilities of Northumbrian Water Limited's directors

As explained in the Directors' Statement within the "Directors' responsibilities and declarations for the year ended 31 March 2022" section of the Report, the Directors of NWL are responsible for:

- determining appropriate reporting topics and selecting or establishing suitable criteria for measuring or evaluating the underlying subject matter;
- ensuring that those criteria are relevant and appropriate to NWL and the intended users of the Report;
- the preparation of the Subject Matter Information in accordance with the Reporting Criteria including designing, implementing and maintaining systems, processes and internal controls over information relevant to the evaluation or measurement of the Subject Matter Information, which is free from material misstatement, whether due to fraud or error, against the Reporting Criteria; and
- producing the Report, including underlying information and a statement of Directors' responsibility, which provides accurate, balanced reflection of NWL's performance in this area and discloses, with supporting rationale, matters relevant to the intended users of the Report.

Our responsibilities

We are responsible for:
- planning and performing the engagement to obtain limited assurance about whether the Subject Matter Information is free from material misstatement, whether due to fraud or error;
- forming an independent conclusion, based on the procedures we have performed and the evidence we have obtained; and
- reporting our conclusion to the Directors of NWL.

*NWL's Annual Performance Report is collectively comprised of the following documents: Annual Performance Report 2021/22, RP19IPD01_ODI-performance-model 2021/22, 2021-2022 annual performance report tables (excluding tables 3A_3I), and APR22 Bioresources Market Monitoring table. The specific document(s) that each selected non-financial data point is located within is outlined in Column 6 of Annex A of this Independent Limited Assurance Report.

Professional standards applied

We performed a limited assurance engagement in accordance with International Standard on Assurance Engagements 3000 (Revised) 'Assurance Engagements other than Audits or Reviews of Historical Financial Information', issued by the International Auditing and Assurance Standards Board.

Our independence and quality control

We have complied with the Institute of Chartered Accountants in England and Wales Code of Ethics, which includes independence and other requirements founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour, that are at least as demanding as the applicable provisions of the International Ethics Standards Board for Accountants International Code of Ethics for Professional Accountants (including International Independence Standards).

We apply International Standard on Quality Control (UK) 1 and accordingly maintain a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Summary of work performed as the basis for our assurance conclusion

In carrying out our limited assurance engagement we:

- considered the suitability in the circumstances of NWL's use of the Reporting Criteria, as the basis for preparing the Subject Matter Information;
- considered the Subject Matter Information and the Reporting Criteria in the context of Ofwat's Final Determination and Regulatory Accounting Guidelines;
- through inquiries with NWL's management, obtained an understanding of NWL's control environment, processes and systems relevant to the preparation of the Subject Matter Information;
- evaluated whether NWL's methods for developing estimates are appropriate and had been consistently applied;
- undertook site visits at a sample of NWL's Water and Wastewater Treatment Works sites;
- performed limited substantive testing on a selective basis of the Subject Matter Information to check that underlying information had been appropriately evaluated or measured, recorded, collated and reported; and
- considered the disclosure and presentation of the Subject Matter Information.

Our procedures did not include evaluating the suitability of design or operating effectiveness of control activities, or separately developing our own estimates against which to evaluate NWL's estimates. Nor did we perform procedures on financial information extracted from the audited accounts of NWL and used in the calculation of the selected information.

The procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for, a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed.

Other information

The other information comprises all of the information in the Report other than the Subject Matter Information and our assurance report. The directors are responsible for the other information. As explained above, our assurance conclusion does not extend to the other information and, accordingly, we do not express any form of assurance thereon. In connection with our assurance of the Subject Matter Information, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the Subject Matter Information or our knowledge obtained during the assurance engagement, or otherwise appears to contain a material misstatement of fact. If we identify an apparent material inconsistency or material misstatement of fact, we are required to perform procedures to conclude whether there is a material misstatement of the Subject Matter Information or a material misstatement of the other information, and to take appropriate actions in the circumstances.

Use and distribution of our report

This report, including our conclusion, has been prepared solely for the Board of Directors of NWL in accordance with the agreement between us dated 12 January 2018 (the "agreement"). Our report must not be made available to any other party save as set out in the agreement. To the fullest extent permitted by law, we do not accept or assume responsibility or liability to anyone other than the Board of Directors and NWL for our work or this report except where terms are expressly agreed between us in writing.

PricewaterhouseCoopers LLP
Chartered Accountants
Leeds
15 July 2022

Annex A to the Independent Limited Assurance Report

Subject Matter Information

Links to NWL's Annual Performance Report documents can be found at - https://www.nwg.co.uk/about-us/nwl/how-we-are-performing/annual-performance-report/[1]

Row Reference	Row Title	Column Title	Unit of Measure	Reported number	Reported in
3A.1	Water quality compliance (CRI) Calendar year metric	Current reporting year	Number	6.36	Annual Performance Report 21/2022 RP19IPD01_ODI-performance-model 2021/22
3A.3	Leakage NW region	Current reporting year	%	0.1	Annual Performance Report 21/2022 RP19IPD01_ODI-performance-model 2021/22
3A.3	Leakage ESW region	Current reporting year	%	3.2	Annual Performance Report 21/2022 RP19IPD01_ODI-performance-model 2021/22
3A.4	Per capita consumption	Current reporting year	%	4.7	Annual Performance Report 21/2022 RP19IPD01_ODI-performance-model 2021/22
3A.6	Unplanned outage	Current reporting year	%	4.57	Annual Performance Report 21/2022 RP19IPD01_ODI-performance-model 2021/22
3A.7	Visible leak repair time	Current reporting year	Days	6.7	Annual Performance Report 21/2022 RP19IPD01_ODI-performance-model 2021/22
3A.8	Voids	Current reporting year	%	3.53	Annual Performance Report 21/2022 RP19IPD01_ODI-performance-model 2021/22
3A.10	Discoloured water contacts Calendar year metric	Current reporting year	Number	8.42	Annual Performance Report 21/2022 RP19IPD01_ODI-performance-model 2021/22
3A.11	Taste and smell contacts Calendar year metric	Current reporting year	Number	1.89	Annual Performance Report 21/2022 RP19IPD01_ODI-performance-model 2021/22
3A.12	Event Risk Index (ERI) Calendar year metric	Current reporting year	Number	289.699	Annual Performance Report 21/2022 RP19IPD01_ODI-performance-model 2021/22
3A.14	Abstraction incentive mechanism (AIM)	Current reporting year	Megalitres	N/A	Annual Performance Report 21/2022 RP19IPD01_ODI-performance-model 2021/22
3B.2	Pollution incidents Calendar year metric	Current reporting year	Number	22.98	Annual Performance Report 21/2022 RP19IPD01_ODI-performance-model 2021/22
3B.4	Treatment Works Compliance Calendar year metric	Current reporting year	%	98.03	Annual Performance Report 21/2022 RP19IPD01_ODI-performance-model 2021/22
3B.8	Bathing water compliance Calendar year metric	Current reporting year	%	97.06	Annual Performance Report 21/2022 RP19IPD01_ODI-performance-model 2021/22
3E.1	Risk of severe restrictions in a drought	Current reporting year	%	0	Annual Performance Report 21/2022 RP19IPD01_ODI-performance-model 2021/22
3E.12	Bioresources	Current reporting year	%	100	Annual Performance Report 21/2022 RP19IPD01_ODI-performance-model 2021/22
3F.4	Per capita consumption (PCC)	Standardising numerical value	Number	4709.07	RP19IPD01_ODI-performance-model 2021/22
		Performance level – Actual (current reporting year)	Ml/d	743	

[1]The maintenance and integrity of NWL's website is the responsibility of the Directors; the work carried out by us does not involve consideration of these matters and, accordingly, we accept no responsibility for any changes that may have occurred to the reported Subject Matter Information or Reporting Criteria when presented on NWL's website

		Performance level – Calculated (i.e. standardised)	Litres per day	157.78	
3F.6	Per capita consumption (PCC)	Performance level – actual (2021-22)	Litres per day	157.8	RP19IPD01_ODI-performance-model 2021/22
		Calculated performance level to compare against PCL's	%	-4.7	
3F1.5	Leakage	Performance level – actual (2021-22)	Ml/d	130.5	RP19IPD01_ODI-performance-model 2021/22
		Calculated performance level to compare against PCLs	Percentage	0.1	
3F2.5	Leakage	Performance level – actual (2021-22)	M/d	59.3	RP19IPD01_ODI-performance-model 2021/22
		Calculated performance level to compare against PCLs	%	3.2	
3F.8	Unplanned outage	Current company level peak week production capacity (PWPC)	Ml/d	1545.27	RP19IPD01_ODI-performance-model 2021/22
		Reduction in company level PWPC	Ml/d	70.64	
		Outage proportion of PWPC	%	4.57	
3G.4	Pollution incidents	Standardising numerical value	Km	30026.00	RP19IPD01_ODI-performance-model 2021/22
		Performance level- actual current reporting year	Number	69	
		Calculated performance level	%	22.98	
3I.1	Planned outage	Current company level peak week production capacity (PWPC)	Ml/d	1545.27	RP19IPD01_ODI-performance-model 2021/22
		Reduction in company level PWPC	Ml/d	162.58	
		Outage proportion of PWPC	%	10.52	
3I.2	Risk of severe restrictions in drought	Deployable output	Ml/d	1407.59	RP19IPD01_ODI-performance-model 2021/22
		Outage allowance	Ml/d	90.56	
		Dry year demand	Ml/d	1115.49	
		Target headroom	Ml/d	86.14	
		Total population supplied	Ml/d	4941.04	
		Customers at risk	Ml/d	0.00	
4R.1	Residential water only customers	Unmeasured	000's	275.322	2021-2022 annual performance report tables (excluding tables 3A_3I)
		Measured	000's	494.955	
		Total	000's	770.277	
		Voids	000's	24.159	
4R.2	Residential wastewater only customers	Unmeasured	000's	27.742	2021-2022 annual performance report tables (excluding tables 3A_3I)
		Measured	000's	39.967	
		Total	000's	67.709	
		Voids	000's	3.096	
4R.3	Residential water and wastewater customers	Unmeasured	000's	646.617	2021-2022 annual performance report tables (excluding tables 3A_3I)
		Measured	000's	470.265	

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		Total	000's	1116.882	
		Voids	000's	43.045	
4R.4	Total residential customers	Unmeasured	000's	949.981	2021-2022 annual performance report tables (excluding tables 3A_3I)
		Measured	000's	1005.187	
		Total	000's	1954.686	
		Voids	000's	70.300	
4R.5	Business water only customers	Unmeasured	000's	3.034	2021-2022 annual performance report tables (excluding tables 3A_3I)
		Measured	000's	39.312	
		Total	000's	42.346	
		Voids	000's	9.558	
4R.6	Business wastewater only customers	Unmeasured	000's	4.410	2021-2022 annual performance report tables (excluding tables 3A_3I)
		Measured	000's	1.311	
		Total	000's	5.721	
		Voids	000's	3.852	
4R.7	Business water & wastewater customers	Unmeasured	000's	4.161	2021-2022 annual performance report tables (excluding tables 3A_3I)
		Measured	000's	38.884	
		Total	000's	43.045	
		Voids	000's	13.376	
4R.8	Total business customers	Unmeasured	000's	11.605	2021-2022 annual performance report tables (excluding tables 3A_3I)
		Measured	000's	79.507	
		Total	000's	91.112	
		Voids	000's	26.786	
4R.9	Total customers	Unmeasured	000's	961.286	2021-2022 annual performance report tables (excluding tables 3A_3I)
		Measured	000's	1084.694	
		Total	000's	2045.980	
		Voids	000's	97.086	
4R.10	Residential properties billed	Water Unmeasured	000's	921.939	2021-2022 annual performance report tables (excluding tables 3A_3I)
		Water Measured	000's	965.220	
		Water Total	000's	1887.159	
		Wastewater Unmeasured	000's	674.359	
		Wastewater measured	000's	510.232	
		Wastewater Total	000's	1184.591	
4R.11	Residential void properties	Water Total	000's	67.204	2021-2022 annual performance report tables (excluding tables 3A_3I)
		Wastewater Total	000's	46.141	
4R.12	Total connected residential properties	Water Total	000's	1954.363	2021-2022 annual performance report tables (excluding tables 3A_3I)
		Wastewater Total	000's	1230.732	
4R.13	Business properties billed	Water Unmeasured	000's	7.195	2021-2022 annual performance report tables (excluding tables 3A_3I)
		Water Measured	000's	78.196	
		Water Total	000's	85.391	
		Wastewater Unmeasured	000's	8.571	

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		Wastewater measured	000's	40.195	
		Wastewater Total	000's	48.766	
4R.14	Business void properties	Water Total	000's	22.935	2021-2022 annual performance report tables (excluding tables 3A_3I)
		Wastewater Total	000's	17.229	
4R.15	Total connected business properties	Water Total	000's	108.326	2021-2022 annual performance report tables (excluding tables 3A_3I)
		Wastewater Total	000's	65.995	
4R.16	Total connected properties	Water Total	000's	2065.689	2021-2022 annual performance report tables (excluding tables 3A_3I)
		Wastewater Total	000's	1296.727	
4R.17	Total new residential properties connected in year	Water Unmeasured No meter	000's	0.000	2021-2022 annual performance report tables (excluding tables 3A_3I)
		Water Unmeasured Basic meter	000's	0.000	
		Water Unmeasured AMR meter	000's	0.000	
		Water Unmeasured AMI Capable meter	000's	0.000	
		Water Unmeasured AMI Active meter	000's	0.000	
		Water Unmeasured Total	000's	0.000	
		Water Measured No meter	000's	0.000	
		Water Measured Basic meter	000's	2.077	
		Water Measured AMR meter	000's	2.967	
		Water Measured AMI Capable meter	000's	8.772	
		Water Measured AMI Active meter	000's	0.000	
		Water Measured Total	000's	13.816	
4R.18	Total new business properties connected in year	Water Unmeasured No meter	000's	0.000	2021-2022 annual performance report tables (excluding tables 3A_3I)
		Water Unmeasured Basic meter	000's	0.000	
		Water Unmeasured AMR meter	000's	0.000	
		Water Unmeasured AMI Capable meter	000's	0.000	
		Water Unmeasured AMI Active meter	000's	0.000	
		Water Unmeasured Total	000's	0.000	
		Water Measured No meter	000's	0.000	
		Water Measured Basic meter	000's	0.196	
		Water Measured AMR	000's	0.061	
		Water Measured AMI Capable meter	000's	0.216	
		Water Measured AMI Active meter	000's	0.000	
		Water Measured Total	000's	0.467	
4R.19	Residential properties billed at year end	Water Unmeasured No meter	000's	898.537	2021-2022 annual performance report tables (excluding tables 3A_3I)

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		Water Unmeasured Basic meter	000's	1.297	
		Water Unmeasured AMR Meter	000's	0.138	
		Water Unmeasured AMI Capable meter	000's	7.026	
		Water Unmeasured AMI Active	000's	6.848	
		Water Unmeasured Total	000's	913.846	
		Water Measured No meter	000's	0.000	
		Water Measured Basic meter	000's	875.193	
		Water Measured AMR Meter	000's	86.705	
		Water Measured AMI Capable	000's	18.237	
		Water Measured AMI Active	000's	0.481	
		Water Measured Total	000's	980.606	
		Total	000's	1894.452	
4R.20	Residential properties unbilled at year end	Uneconomic to bill	000's	0.000	2021-2022 annual performance report tables (excluding tables 3A_3I)
		Other	000's	0.039	
		Total	000's	0.039	
4R.21	Residential void properties at year end	Water Unmeasured Total	000's	36.462	2021-2022 annual performance report tables (excluding tables 3A_3I)
		Water Measured Total	000's	30.929	
		Total	000's	67.391	
4R.22	Total connected residential properties at year end	Water Unmeasured Total	000's	950.308	2021-2022 annual performance report tables (excluding tables 3A_3I)
		Water Measured Total	000's	1011.535	
		Total	000's	1961.882	
4R.23	Business properties billed at year end	Water Unmeasured No meter	000's	7.165	2021-2022 annual performance report tables (excluding tables 3A_3I)
		Water Unmeasured Basic meter	000's	0.000	
		Water Unmeasured AMR Meter	000's	0.000	
		Water Unmeasured AMI Capable Meter	000's	0.000	
		Water Unmeasured AMI Active Meter	000's	0.000	
		Water Unmeasured Total	000's	7.165	
		Water Measured No meter	000's	0.000	
		Water Measured Basic meter	000's	18.519	
		Water Measured AMR Meter	000's	0.411	
		Water Measured AMI Capable meter	000's	0.333	
		Water Measured AMI Active	000's	0.000	
		Water Measured Total	000's	19.263	
		Total	000's	26.428	

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4R.24	Business properties Unbilled at year end	Uneconomic to bill	000's	0.000	2021-2022 annual performance report tables (excluding tables 3A_3I)
		Other	000's	0.386	
		Total	000's	0.386	
4R.25	Business void properties at year end	Water Unmeasured Total	000's	4.205	2021-2022 annual performance report tables (excluding tables 3A_3I)
		Water Measured Total	000's	18.495	
		Total	000's	22.700	
4R.26	Total connected business properties at year end	Water Unmeasured Total	000's	11.370	2021-2022 annual performance report tables (excluding tables 3A_3I)
		Water Measured Total	000's	37.758	
		Total	000's	49.514	
4R.27	Total connected properties at year end	Water Unmeasured Total	000's	961.678	2021-2022 annual performance report tables (excluding tables 3A_3I)
		Water Measured Total	000's	1049.293	
		Total	000's	2011.396	
4R.28	Resident population	Water	000's people	4772.948	2021-2022 annual performance report tables (excluding tables 3A_3I)
		Wastewater	000's people	2745.627	
4R.29	Non-resident population	Wastewater	000's people	32.982	2021-2022 annual performance report tables (excluding tables 3A_3I)
4R.30	Household Population	Residential population	000's people	4709.073	2021-2022 annual performance report tables (excluding tables 3A_3I)
4R.31	Household measured population (water only)	Residential population	000's people	2035.222	2021-2022 annual performance report tables (excluding tables 3A_3I)
4R.32	Household unmeasured population (water only)	Residential population	000's people	2673.851	2021-2022 annual performance report tables (excluding tables 3A_3I)
5A.1	Water from impounding reservoirs	Input	Ml/d	432.19	2021-2022 annual performance report tables (excluding tables 3A_3I)
5A.2	Water from pumped storage reservoirs	Input	Ml/d	284.97	2021-2022 annual performance report tables (excluding tables 3A_3I)
5A.3	Water from river abstractions	Input	Ml/d	349.70	2021-2022 annual performance report tables (excluding tables 3A_3I)
5A.4	Water from groundwater works,excluding managed aquifer recharge (MAR) water supply schemes	Input	Ml/d	96.08	2021-2022 annual performance report tables (excluding tables 3A_3I)
5A.5	Water from artificial recharge (AR) water supply schemes	Input	Ml/d	0.00	2021-2022 annual performance report tables (excluding tables 3A_3I)
5A.6	Water from aquifer storage and recovery (ASR) water supply schemes	Input	Ml/d	0.00	2021-2022 annual performance report tables (excluding tables 3A_3I)
5A.7	Water from saline abstractions	Input	Ml/d	0.00	2021-2022 annual performance report tables (excluding tables 3A_3I)
5A.8	Water from water reuse schemes	Input	Ml/d	0.00	2021-2022 annual performance report tables (excluding tables 3A_3I)
5A.9	Number of impounding reservoirs	Input	Number	21	2021-2022 annual performance report tables (excluding tables 3A_3I)
5A.10	Number of pumped storage reservoirs	Input	Number	3	2021-2022 annual performance report tables (excluding tables 3A_3I)
5A.11	Number of river abstractions	Input	Number	9	2021-2022 annual performance report tables (excluding tables 3A_3I)
5A.12	Number of groundwater works excluding managed aquifer recharge (MAR) water supply schemes	Input	Number	49	2021-2022 annual performance report tables (excluding tables 3A_3I)
5A.13	Number of artificial recharge (AR) water supply schemes	Input	Number	0	2021-2022 annual performance report tables (excluding tables 3A_3I)
5A.14	Number of aquifer storage and recovery (ASR) water supply schemes	Input	Number	0	2021-2022 annual performance report tables (excluding tables 3A_3I)

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5A.15	Number of saline abstraction schemes	Input	Number	0	2021-2022 annual performance report tables (excluding tables 3A_3I)
5A.16	Number of reuse schemes	Input	Number	0	2021-2022 annual performance report tables (excluding tables 3A_3I)
5A.17	Total number of sources	Input	Number	82	2021-2022 annual performance report tables (excluding tables 3A_3I)
5A.18	Total number of water reservoirs	Input	Number	30	2021-2022 annual performance report tables (excluding tables 3A_3I)
5A.19	Total volumetric capacity of water reservoirs	Input	Ml/d	447668	2021-2022 annual performance report tables (excluding tables 3A_3I)
5A.20	Total number of intake and source pumping stations	Input	Number	78	2021-2022 annual performance report tables (excluding tables 3A_3I)
5A.21	Total installed power capacity of intake and source pumping stations	Input	Kilowatts (kW)	46784	2021-2022 annual performance report tables (excluding tables 3A_3I)
5A.23	Average pumping head – raw water abstraction	Input	Mean head per day (M.hd)	33.11	2021-2022 annual performance report tables (excluding tables 3A_3I)
5A.25	Total number of raw water abstraction imports	Input	Number	0	2021-2022 annual performance report tables (excluding tables 3A_3I)
5A.26	Water imported from 3rd parties' raw water abstraction systems	Input	Megalitres per day (Ml/d)	0.00	2021-2022 annual performance report tables (excluding tables 3A_3I)
5A.27	Total number of raw water abstraction exports	Input	Number	0	2021-2022 annual performance report tables (excluding tables 3A_3I)
5A.28	Water exported to 3rd parties' from raw water abstraction systems	Input	Megalitres per day (Ml/d)	0.00	2021-2022 annual performance report tables (excluding tables 3A_3I)
5A.29	Water resources capacity (measured using water resources yield)	Input	Megalitres per day (Ml/d)	1622.91	2021-2022 annual performance report tables (excluding tables 3A_3I)
6A.1	Total number of balancing reservoirs	Input	Number	6	2021-2022 annual performance report tables (excluding tables 3A_3I)
6A.2	Total volumetric capacity of balancing reservoirs	Input	Megalitres (Ml)	1655	2021-2022 annual performance report tables (excluding tables 3A_3I)
6A.3	Total number of raw water transport stations	Input	Number	7	2021-2022 annual performance report tables (excluding tables 3A_3I)
6A.4	Total installed power capacity of raw water transport pumping stations	Input	Kilowatts (kW)	3464	2021-2022 annual performance report tables (excluding tables 3A_3I)
6A.6	Average pumping head ~ raw water transport	Input	Mean head per day (M.hd)	8.25	2021-2022 annual performance report tables (excluding tables 3A_3I)
6A.8	Total number of raw water transport imports	Input	Number	1	2021-2022 annual performance report tables (excluding tables 3A_3I)
6A.9	Water imported from 3rd parties' raw water transport systems	Input	Megalitres per day (Ml/d)	79.82	2021-2022 annual performance report tables (excluding tables 3A_3I)
6A.10	Total number of raw water transport exports	Input	Number	0	2021-2022 annual performance report tables (excluding tables 3A_3I)
6A.11	Water exported to 3rd parties' raw water transport systems	Input	Megalitres per day (Ml/d)	0.00	2021-2022 annual performance report tables (excluding tables 3A_3I)
6A.29	Number of treatment works requiring remedial action because of raw water deterioration	Input	Number	3	2021-2022 annual performance report tables (excluding tables 3A_3I)
6A.30	Zonal population receiving water treated with orthophosphate	Input	'000s	4435.810	2021-2022 annual performance report tables (excluding tables 3A_3I)
6A.31	Average pumping head – water treatment	Input	Mean head per day (M.hd)	2.31	2021-2022 annual performance report tables (excluding tables 3A_3I)
6A.33	Total number of water treatment imports	Input	Number	0	2021-2022 annual performance report tables (excluding tables 3A_3I)
6A.34	Water imported from 3rd parties' Water Treatment Works	Input	Megalitres per day (Ml/d)	0.00	2021-2022 annual performance report tables (excluding tables 3A_3I)
6A.35	Total number of water treatment exports	Input	Number	0	2021-2022 annual performance report tables (excluding tables 3A_3I)
6A.36	Water exported to 3rd parties' Water Treatment Works	Input	Megalitres per day (Ml/d)	0.00	2021-2022 annual performance report tables (excluding tables 3A_3I)

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6B.1	Total installed power capacity of potable water pumping station	Input	Kilowatts (kW)	42018	2021-2022 annual performance report tables (excluding tables 3A_3I)
6B.2	Total volumetric capacity of service reservoirs	Input	Megalitres (Ml)	2109.1	2021-2022 annual performance report tables (excluding tables 3A_3I)
6B.3	Total volumetric capacity of water towers	Input	Megalitres (Ml)	25.8	2021-2022 annual performance report tables (excluding tables 3A_3I)
6B.4	Distribution input	Input	Megalitres per day (Ml/d)	1167.75	2021-2022 annual performance report tables (excluding tables 3A_3I)
6B.5	Water delivered (non-potable)	Input	Megalitres per day (Ml/d)	50.31	2021-2022 annual performance report tables (excluding tables 3A_3I)
6B.6	Water delivered (potable)	Input	Megalitres per day (Ml/d)	1012.71	2021-2022 annual performance report tables (excluding tables 3A_3I)
6B.7	Water delivered (billed measured residential)	Input	Megalitres per day (Ml/d)	310.34	2021-2022 annual performance report tables (excluding tables 3A_3I)
6B.8	Water delivered (billed measured business)	Input	Megalitres per day (Ml/d)	195.84	2021-2022 annual performance report tables (excluding tables 3A_3I)
6B.9	Total annual leakage	Input	Megalitres per day (Ml/d)	189.76	2021-2022 annual performance report tables (excluding tables 3A_3I)
6B.10	Distribution losses	Input	Megalitres per day (Ml/d)	150.44	2021-2022 annual performance report tables (excluding tables 3A_3I)
6B.11	Water taken unbilled	Input	Megalitres per day (Ml/d)	32.33	2021-2022 annual performance report tables (excluding tables 3A_3I)
6B.12	Proportion of distribution input derived from impounding reservoirs	Input	Number	0.256	2021-2022 annual performance report tables (excluding tables 3A_3I)
6B.13	Proportion of distribution input derived from pumped storage reservoirs	Input	Number	0.276	2021-2022 annual performance report tables (excluding tables 3A_3I)
6B.14	Proportion of distribution input derived from river abstractions	Input	Number	0.404	2021-2022 annual performance report tables (excluding tables 3A_3I)
6B.15	Proportion of distribution input derived from groundwater works, excluding managed aquifer recharge (MAR) water supply schemes	Input	Number	0.064	2021-2022 annual performance report tables (excluding tables 3A_3I)
6B.16	Proportion of distribution input derived from artificial recharge (AR) water supply schemes	Input	Number	0.00	2021-2022 annual performance report tables (excluding tables 3A_3I)
6B.17	Proportion of distribution input derived from aquifer storage and recovery (ASR) water supply schemes	Input	Number	0.00	2021-2022 annual performance report tables (excluding tables 3A_3I)
6B.18	Proportion of distribution input derived from saline abstractions	Input	Number	0.00	2021-2022 annual performance report tables (excluding tables 3A_3I)
6B.19	Proportion of distribution input derived from water reuse schemes	Input	Number	0.00	2021-2022 annual performance report tables (excluding tables 3A_3I)
6B.20	Total number of potable water pumping stations that pump into and within the treated water distribution system	Input	Number	307	2021-2022 annual performance report tables (excluding tables 3A_3I)
6B.21	Number of potable water pumping stations delivering treated groundwater into the treated water distribution system	Input	Number	29	2021-2022 annual performance report tables (excluding tables 3A_3I)
6B.22	Number of potable water pumping stations delivering surface water into the treated water distribution system	Input	Number	19	2021-2022 annual performance report tables (excluding tables 3A_3I)
6B.23	Number of potable water pumping stations that re-pump water already within the treated water distribution system	Input	Number	259	2021-2022 annual performance report tables (excluding tables 3A_3I)
6B.24	Number of potable water pumping stations that pump water imported from a 3rd party supply into the treated water distribution system	Input	Number	0	2021-2022 annual performance report tables (excluding tables 3A_3I)
6B.25	Total number of service reservoirs	Input	Number	304	2021-2022 annual performance report tables (excluding tables 3A_3I)

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6B.26	Number of water towers	Input	Number	35	2021-2022 annual performance report tables (excluding tables 3A_3I)
6B.28	Average pumping head – treated water distribution	Input	Mean head per day (M.hd)	51.92	2021-2022 annual performance report tables (excluding tables 3A_3I)
6B.29	Total number of treated water distribution imports	Input	Number	4	2021-2022 annual performance report tables (excluding tables 3A_3I)
6B.30	Water imported from 3rd parties' treated water distribution systems	Input	Megalitres per day (Ml/d)	0.85	2021-2022 annual performance report tables (excluding tables 3A_3I)
6B.31	Total number of treated water distribution exports	Input	Number	39	2021-2022 annual performance report tables (excluding tables 3A_3I)
6B.32	Water exported to 3rd parties' treated water distribution systems	Input	Megalitres per day (Ml/d)	5.04	2021-2022 annual performance report tables (excluding tables 3A_3I)
6C.22	Compliance Risk Index	Input	Number	6.36	2021-2022 annual performance report tables (excluding tables 3A_3I)
6C.23	Event Risk Index	Input	Number	290	2021-2022 annual performance report tables (excluding tables 3A_3I)
6D.17	Leakage improvements delivering benefits in 2020-25	Input	Megalitres per day (Ml/d)	16.26	2021-2022 annual performance report tables (excluding tables 3A_3I)
6D.18	Per capita consumption (measured customers)	Input	Litres per household per day	146.42	2021-2022 annual performance report tables (excluding tables 3A_3I)
6D.19	Per capita consumption (unmeasured customers)	Input	Litres per household per day	166.54	2021-2022 annual performance report tables (excluding tables 3A_3I)
6F	WRMP1	Demand-side improvements delivering benefits in 2020-2025 (excl leakage and metering)	Md/d reduction per annum.	1.010	2021-2022 annual performance report tables (excluding tables 3A_3I)
7B.1	Works name	Large STW1 – Large STW26	Text	AYCLIFFE BARKERSHAUGH BELMONT BERWICK BILLINGHAM BIRTLEY BISHOP AUCKLAND BLYTH BRAN SANDS DOMESTIC CAMBOIS CHESTER-LE-STREET CONSETT CRAMLINGTON HENDON HEXHAM HORDEN HOWDON MARSKE NEWBIGGIN SEAHAM SEATON CAREW SEDGELETCH STRESSHOLME WASHINGTON WESTWOOD(CONSETT) EAST TANFIELD	2021-2022 annual performance report tables (excluding tables 3A_3I)
7B.2	Classification of treatment works	Large STW1 – Large STW26	Text	AYCLIFFE: TA2 BARKERSHAUGH: TB2 BERWICK: SAS BILLINGHAM: TA2 BIRTLEY: TB1 BISHOP AUCKLAND: TB2 BLYTH: SAS BRAN SANDS DOMESTIC: TA2	2021-2022 annual performance report tables (excluding tables 3A_3I)

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				CRAMLINGTON: SAS HENDON: TA2 HORDEN: SAS HOWDON: TA2 MARSKE: TA2 NEWBIGGIN: SAS SEAHAM: SAS SEATON CAREW: TA2 SEDGELETCH: TA2 STRESSHOLME: SB WASHINGTON: SAS WESTWOOD (CONSETT): TB2 EAST TANFIELD: TB2	
7B.3	Population equivalent of total load received	Large STW1 – Large STW26	Number of people ('000s)	AYCLIFFE: 57.08 BARKERSHAUGH: 40.27 BERWICK: 28.03 BILLINGHAM: 28.8 BIRTLEY: 29.65 BISHOP AUCKLAND: 30.32 BLYTH: 35.95 BRAN SANDS DOMESTIC: 645.45 CRAMLINGTON: 28.54 HENDON: 284.81 HORDEN: 68.46 HOWDON: 670.36 MARSKE: 86.39 NEWBIGGIN: 37 SEAHAM: 44.8 SEATON CAREW: 145.8 SEDGELETCH: 38.43 STRESSHOLME: 146.74 WASHINGTON: 64.96 WESTWOOD (CONSETT): 37.38 EAST TANFIELD: 28.36	2021-2022 annual performance report tables (excluding tables 3A_3I)
7B.4	Suspended solids consent	Large STW1 – Large STW26	Milligrams per litre (mg/l)	AYCLIFFE: 40 BARKERSHAUGH: 75 BERWICK: 60 BILLINGHAM: 60 BIRTLEY: 50 BISHOP AUCKLAND: 60 BLYTH: 30 BRAN SANDS DOMESTIC: 60 CRAMLINGTON: 80 HENDON: 60 HORDEN: 250 HOWDON: 60 MARSKE: 60 NEWBIGGIN: 250 SEAHAM: 250 SEATON CAREW: 60 SEDGELETCH: 75 STRESSHOLME: 50 WASHINGTON: 60 WESTWOOD (CONSETT): 50 EAST TANFIELD: 70	2021-2022 annual performance report tables (excluding tables 3A_3I)
7B.5	BOD_5 consent	Large STW1 – Large STW26	Milligrams per litre (mg/l)	AYCLIFFE: 25 BARKERSHAUGH: 25 BERWICK: 25 BILLINGHAM: 25 BIRTLEY: 25	2021-2022 annual performance report tables (excluding tables 3A_3I)

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				BISHOP AUCKLAND: 25 BLYTH: 20 BRAN SANDS DOMESTIC: 25 CRAMLINGTON: 25 HENDON: 25 HORDEN: 25 HOWDON: 25 MARSKE: 25 NEWBIGGIN: 25 SEAHAM: 25 SEATON CAREW: 25 SEDGELETCH: 10 STRESSHOLME: 25 WASHINGTON: 25 WESTWOOD (CONSETT): 15 EAST TANFIELD: 15	
7B.6	Ammonia consent	Large STW1 – Large STW26	Milligrams per litre (mg/l)	AYCLIFFE:3 BARKERSHAUGH:15 BIRTLEY:40 BISHOP AUCKLAND:10 BLYTH:10 BRAN SANDS DOMESTIC:40 SEDGELETCH:5 STRESSHOLME:15 WESTWOOD (CONSETT):5 EAST TANFIELD:2	2021-2022 annual performance report tables (excluding tables 3A_3I)
7B.7	Phosphorus consent	Large STW1 – Large STW26	Milligrams per litre (mg/l)	AYCLIFFE:2 BARKERSHAUGH:2 BISHOP AUCKLAND:2 SEDGELETCH:1 WESTWOOD (CONSETT):2 EAST TANFIELD:1	2021-2022 annual performance report tables (excluding tables 3A_3I)
7B.8	UV consent	Large STW1 – Large STW26	Milliwatts per square centimetre (mW/s/cm2)	BILLINGHAM:23 BRAN SANDS DOMESTIC:59 HENDON:37 HOWDON:63 MARSKE:38 SEATON CAREW:24	2021-2022 annual performance report tables (excluding tables 3A_3I)
7B.9	Load received by STW	Large STW1 – Large STW26	Kilograms 5-day Biological Oxygen Demand per day (kgBOD5/d)	AYCLIFFE:3425 BARKERSHAUGH:2416 BERWICK:1682 BILLINGHAM:1728 BIRTLEY:1779 BISHOP AUCKLAND:1819 BLYTH:2157 BRAN SANDS DOMESTIC:38727 CRAMLINGTON:1712 HENDON:17089 HORDEN:4108 HOWDON:40222 MARSKE:5183 NEWBIGGIN:2220 SEAHAM:2688 SEATON CAREW:8748 SEDGELETCH:2306 STRESSHOLME:8804 WASHINGTON:3898 WESTWOOD (CONSETT):2243 EAST TANFIELD:1702	2021-2022 annual performance report tables (excluding tables 3A_3I)

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7B.10	Flow passed to full treatment	Large STW1 – Large STW26	Cubic meters per day (m3/d)	AYCLIFFE:14171 BARKERSHAUGH:9760 BERWICK:6916 BILLINGHAM:11992 BIRTLEY:9493 BISHOP AUCKLAND:16027 BLYTH:13217 BRAN SANDS DOMESTIC:132806 CRAMLINGTON:7752 HENDON:65600 HORDEN:24024 HOWDON:284673 MARSKE:31650 NEWBIGGIN:13886 SEAHAM:12073 SEATON CAREW:34427 SEDGELETCH:14510 STRESSHOLME:33374 WASHINGTON:20080 WESTWOOD (CONSETT):13762 EAST TANFIELD:8481	2021-2022 annual performance report tables (excluding tables 3A_3I)
7C.3	Total pumping station capacity		Kilowatts (kW)	44854	2021-2022 annual performance report tables (excluding tables 3A_3I)
7C.4	Number of network pumping stations		Number	966	2021-2022 annual performance report tables (excluding tables 3A_3I)
7D.1	Load received by STWs in size band 1	Treatment categories (E – L) Treatment works consents (N – AD)	Kilograms 5-day Biological Oxygen Demand per day (kgBOD5/d)	**Treatment Categories:** P: 127 SAS: 103 SB: 748 TA1: 0 TA2: 0 TB1: 22 TB2: 0 Total 1000 **Phosphorus:** <=0.5mg/l: 0 >0.5 to <=1mg/l: 0 >1mg/l: 0 No permit: 1000 Total: 1000 **BOD5:** <=7mg/l: 0 >7 to <=10mg/l: 0 >10 to <=20mg/l: 10 >20mg/l: 284 No permit: 706 Total: 1000 **Ammonia:** <=1mg/l: 0 >1 to <=3mg/l: 0 >3 to <=10mg/l: 0 >10mg/l: 127 No permit: 873 Total: 1000	2021-2022 annual performance report tables (excluding tables 3A_3I)
7D.2	Load received by STWs in size band 2	Treatment categories (E – L) Treatment works consents (N – AD)	Kilograms 5-day Biological Oxygen Demand per day (kgBOD5/d)	**Treatment Categories:** P: 0 SAS: 0 SB: 399 TA1: 0 TA2: 0	2021-2022 annual performance report tables (excluding tables 3A_3I)

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				TB1: 0 TB2: 56 Total 455 **Phosphorus:** <=0.5mg/l: 0 >0.5 to <=1mg/l: 0 >1mg/l: 0 No permit: 455 Total: 455 **BOD5:** <=7mg/l: 0 >7 to <=10mg/l: 0 >10 to <=20mg/l: 46 >20mg/l: 370 No permit: 39 Total: 455 **Ammonia:** <=1mg/l: 0 >1 to <=3mg/l: 0 >3 to <=10mg/l: 22 >10mg/l: 135 No permit: 298 Total: 455	
7D.3	Load received by STWs in size band 3	Treatment categories (E – L) Treatment works consents (N – AD)	Kilograms 5-day Biological Oxygen Demand per day (kgBOD5/d)	**Treatment Categories:** P: 0 SAS: 0 SB: 2806 TA1: 0 TA2: 0 TB1: 0 TB2: 361 Total 3167 **Phosphorus:** <=0.5mg/l: 0 >0.5 to <=1mg/l: 282 >1mg/l: 79 No permit: 2806 Total: 3167 **BOD5:** <=7mg/l: 0 >7 to <=10mg/l: 0 >10 to <=20mg/l: 379 >20mg/l: 2662 No permit: 125 Total: 3166 **Ammonia:** <=1mg/l: 0 >1 to <=3mg/l: 0 >3 to <=10mg/l: 801 >10mg/l: 1319 No permit: 1046 Total: 3166	2021-2022 annual performance report tables (excluding tables 3A_3I)
7D.4	Load received by STWs in size band 4	Treatment categories (E – L) Treatment works consents (N – AD)	Kilograms 5-day Biological Oxygen Demand per day (kgBOD5/d)	**Treatment Categories:** P: 0 SAS: 1233 SB: 4000 TA1: 0 TA2: 0 TB1: 2507 TB2: 1607 Total 9347	2021-2022 annual performance report tables (excluding tables 3A_3I)

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				Phosphorus: <=0.5mg/l: 0 >0.5 to <=1mg/l: 255 >1mg/l: 1147 No permit: 7946 Total: 9348 **BOD5:** <=7mg/l: 0 >7 to <=10mg/l: 1939 >10 to <=20mg/l: 2021 >20mg/l: 5387 No permit: 0 Total: 9347 **Ammonia:** <=1mg/l: 0 >1 to <=3mg/l: 635 >3 to <=10mg/l: 4249 >10mg/l: 2024 No permit: 2440 Total: 9348	
7D.5	Load received by STWs in size band 5	Treatment categories (E – L) Treatment works consents (N – AD)	Kilograms 5-day Biological Oxygen Demand per day (kgBOD5/d)	**Treatment Categories:** P: 0 SAS: 2162 SB: 629 TA1: 0 TA2: 2211 TB1: 0 TB2: 6895 Total 11897 **Phosphorus:** <=0.5mg/l: 0 >0.5 to <=1mg/l: 1470 >1mg/l: 7637 No permit: 2791 Total: 11898 **BOD5:** <=7mg/l: 0 >7 to <=10mg/l: 2041 >10 to <=20mg/l: 2269 >20mg/l: 7588 No permit: 0 Total: 11898 **Ammonia:** <=1mg/l: 0 >1 to <=3mg/l: 844 >3 to <=10mg/l: 4039 >10mg/l: 3575 No permit: 3438 Total: 11896	2021-2022 annual performance report tables (excluding tables 3A_3I)
7D.6	Load received by STWs above size band 5	Treatment categories (E – L) Treatment works consents (N – AD)	Kilograms 5-day Biological Oxygen Demand per day (kgBOD5/d)	**Treatment Categories:** P: 0 SAS: 18465 SB: 8805 TA1: 0 TA2: 117427 TB1: 1779 TB2: 8180 Total 154656 **Phosphorus:** <=0.5mg/l: 0 >0.5 to <=1mg/l: 4007	2021-2022 annual performance report tables (excluding tables 3A_3I)

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				>1mg/l: 9902 No permit: 140746 Total: 154655 **BOD5:** <=7mg/l: 0 >7 to <=10mg/l: 2306 >10 to <=20mg/l: 6102 >20mg/l: 146248 No permit: 0 Total: 154656 **Ammonia:** <=1mg/l: 0 >1 to <=3mg/l: 5126 >3 to <=10mg/l: 8525 >10mg/l: 51727 No permit: 89278 Total: 154656	
7D.7	Total load received	Treatment categories (E – L) Treatment works consents (N – AD)	Kilograms 5-day Biological Oxygen Demand per day (kgBOD5/d)	**Treatment Categories:** P: 127 SAS: 21963 SB: 17387 TA1: 0 TA2: 119638 TB1: 4308 TB2: 17099 Total 180522 **Phosphorus:** <=0.5mg/l: 0 >0.5 to <=1mg/l: 6014 >1mg/l: 18765 No permit: 155744 Total: 180523 **BOD5:** <=7mg/l: 0 >7 to <=10mg/l: 6286 >10 to <=20mg/l: 10827 >20mg/l: 162539 No permit: 870 Total: 180522 **Ammonia:** <=1mg/l: 0 >1 to <=3mg/l: 6605 >3 to <=10mg/l: 17636 >10mg/l: 58907 No permit: 97373 Total: 180521	2021-2022 annual performance report tables (excluding tables 3A_3I)
7D.8	Load received from trade effluent customers at treatment works	Total (L)	Kilograms 5-day Biological Oxygen Demand per day (kgBOD5/d)	9277	2021-2022 annual performance report tables (excluding tables 3A_3I)
7D.9	STWs in size band 1	Treatment categories (E – L) Treatment works consents (N – AD)	number	**Treatment Categories:** P: 90 SAS: 11 SB: 171 TA1: 0 TA2: 0 TB1: 2 TB2: 0 Total 274 Phosphorus: <=0.5mg/l: 0	2021-2022 annual performance report tables (excluding tables 3A_3I)

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				>0.5 to <=1mg/l: 0 >1mg/l: 0 No permit: 274 Total: 274 **BOD5:** <=7mg/l: 0 >7 to <=10mg/l: 0 >10 to <=20mg/l: 2 >20mg/l: 23 No permit: 249 Total: 274 **Ammonia:** <=1mg/l: 0 >1 to <=3mg/l: 0 >3 to <=10mg/l: 0 >10mg/l: 9 No permit: 265 Total: 274	
7D.10	STWs in size band 2	Treatment categories (E – L) Treatment works consents (N – AD)	Number	**Treatment Categories:** P: 0 SAS: 0 SB: 20 TA1: 0 TA2: 0 TB1: 0 TB2: 2 Total 22 **Phosphorus:** <=0.5mg/l: 0 >0.5 to <=1mg/l: 0 >1mg/l: 0 No permit: 22 Total: 22 **BOD5:** <=7mg/l: 0 >7 to <=10mg/l: 0 >10 to <=20mg/l: 2 >20mg/l: 18 No permit: 2 Total: 22 **Ammonia:** <=1mg/l: 0 >1 to <=3mg/l: 0 >3 to <=10mg/l: 1 >10mg/l: 7 No permit: 14 Total: 22	2021-2022 annual performance report tables (excluding tables 3A_3I)
7D.11	STWs in size band 3	Treatment categories (E – L) Treatment works consents (N – AD)	Number	**Treatment Categories:** P: 0 SAS: 0 SB: 46 TA1: 0 TA2: 0 TB1: 0 TB2: 4 Total 50 **Phosphorus:** <=0.5mg/l: 0 >0.5 to <=1mg/l: 3 >1mg/l: 1 No permit: 46	2021-2022 annual performance report tables (excluding tables 3A_3I)

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				Total: 50 **BOD5:** <=7mg/l: 0 >7 to <=10mg/l: 0 >10 to <=20mg/l: 7 >20mg/l: 41 No permit: 2 Total: 50 **Ammonia:** <=1mg/l: 0 >1 to <=3mg/l: 0 >3 to <=10mg/l: 15 >10mg/l: 20 No permit: 15 Total: 50	
7D.12	STWs in size band 4	Treatment categories (E – L) Treatment works consents (N – AD)	Number	**Treatment Categories:** P: 0 SAS: 3 SB: 15 TA1: 0 TA2: 0 TB1: 9 TB2: 6 Total 33 **Phosphorus:** <=0.5mg/l: 0 >0.5 to <=1mg/l: 1 >1mg/l: 3 No permit: 29 Total: 33 **BOD5:** <=7mg/l: 0 >7 to <=10mg/l: 6 >10 to <=20mg/l: 9 >20mg/l: 18 No permit: 0 Total: 33 **Ammonia:** <=1mg/l: 0 >1 to <=3mg/l: 2 >3 to <=10mg/l: 17 >10mg/l: 7 No permit: 7 Total: 33	2021-2022 annual performance report tables (excluding tables 3A_3I)
7D.13	STWs in size band 5	Treatment categories (E – L) Treatment works consents (N – AD)	Number	**Treatment Categories:** P: 0 SAS: 2 SB: 1 TA1: 0 TA2: 2 TB1: 0 TB2: 7 Total 12 **Phosphorus:** <=0.5mg/l: 0 >0.5 to <=1mg/l: 2 >1mg/l: 7 No permit: 3 Total: 12 **BOD5:** <=7mg/l: 0	2021-2022 annual performance report tables (excluding tables 3A_3I)

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				>7 to <=10mg/l: 2 >10 to <=20mg/l: 3 >20mg/l: 7 No permit: 0 Total: 12 **Ammonia:** <=1mg/l: 0 >1 to <=3mg/l: 1 >3 to <=10mg/l: 4 >10mg/l: 4 No permit: 3 Total: 12	
7D.14	STWs above size band 5	Treatment categories (E – L) Treatment works consents (N – AD)	Number	**Treatment Categories:** P: 0 SAS: 7 SB: 1 TA1: 0 TA2: 8 TB1: 1 TB2: 4 Total 21 **Phosphorus:** <=0.5mg/l: 0 >0.5 to <=1mg/l: 2 >1mg/l: 4 No permit: 15 Total: 21 **BOD5:** <=7mg/l: 0 >7 to <=10mg/l: 1 >10 to <=20mg/l: 3 >20mg/l: 17 No permit: 0 Total: 21 **Ammonia:** <=1mg/l: 0 >1 to <=3mg/l: 2 >3 to <=10mg/l: 4 >10mg/l: 4 No permit: 11 Total: 21	2021-2022 annual performance report tables (excluding tables 3A_3I)
7D.15	Total number of works	Treatment categories (E – L) Treatment works consents (N – AD)	Number	**Treatment Categories:** P: 90 SAS: 23 SB: 254 TA1: 0 TA2: 10 TB1: 12 TB2: 23 Total 412 Phosphorus: <=0.5mg/l: 0 >0.5 to <=1mg/l: 8 >1mg/l: 15 No permit: 389 Total: 412 BOD5: <=7mg/l: 0 >7 to <=10mg/l: 9 >10 to <=20mg/l: 26 >20mg/l: 124	2021-2022 annual performance report tables (excluding tables 3A_3I)

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				No permit: 253 Total: 412 Ammonia: <=1mg/l: 0 >1 to <=3mg/l: 5 >3 to <=10mg/l: 41 >10mg/l: 51 No permit: 315 Total: 412	
7D.16	Current population equivalent served by STWs	E	000s population equivalent	3,120.300	2021-2022 annual performance report tables (excluding tables 3A_3I)
7D.17	Current population equivalent served by filter bed or activated sludge STWs with tightened/new P consents	E	000s population equivalent	0.000	2021-2022 annual performance report tables (excluding tables 3A_3I)
7D.18	Current population equivalent served by STWs with tightened/new N consents	E	000s population equivalent	0.000	2021-2022 annual performance report tables (excluding tables 3A_3I)
7D.19	Current population equivalent served by STWs with tightened/new sanitary parameter consents	E	000s population equivalent	0.000	2021-2022 annual performance report tables (excluding tables 3A_3I)
7D.20	Current population equivalent served by STWs with tightened/new UV consents	E	000s population equivalent	0.000	2021-2022 annual performance report tables (excluding tables 3A_3I)
7D.21	Population equivalent treatment capacity enhancement	E	000s population equivalent	0.909	2021-2022 annual performance report tables (excluding tables 3A_3I)
7D.22	Current population equivalent served by STW with tightened / new consents for chemicals	E	000s population equivalent	0.000	2021-2022 annual performance report tables (excluding tables 3A_3I)
7E.2	Designated coastal bathing waters	Input	Number	34	2021-2022 annual performance report tables (excluding tables 3A_3I)
8A.1	Total sewage sludge produced, treated by incumbents	Total	Total tonnes dry solids per year (ttds/ year)	73.5	2021-2022 annual performance report tables (excluding tables 3A_3I)
8A.2	Total sewage sludge produced, treated by 3rd party sludge service provider	Total	Total tonnes dry solids per year (ttds/ year)	0.0	2021-2022 annual performance report tables (excluding tables 3A_3I)
8A.3	Total sewage sludge produced	Total	Total tonnes dry solids per year (ttds/ year)	73.5	2021-2022 annual performance report tables (excluding tables 3A_3I)
8A.4	Total sewage sludge produced from non-appointed liquid waste treatment	Total	Total tonnes dry solids per year (ttds/ year)	0.8	2021-2022 annual performance report tables (excluding tables 3A_3I)
8A.5	Percentage of sludge produced and treated at a site of STW and STC co-location	Total	Percentage (%)	66.14	2021-2022 annual performance report tables (excluding tables 3A_3I)
8A.6	Total sewage sludge disposed by incumbents	Total	Total tonnes dry solids per year (ttds/ year)	27.3	2021-2022 annual performance report tables (excluding tables 3A_3I)
8A.7	Total sewage sludge disposed by 3rd party sludge service provider	Total	Total tonnes dry solids per year (ttds/ year)	0.0	2021-2022 annual performance report tables (excluding tables 3A_3I)
8A.8	Total sewage sludge disposed	Total	Total tonnes dry solids per year (ttds/ year)	27.3	2021-2022 annual performance report tables (excluding tables 3A_3I)
8A.9	Total measure of intersiting 'work' done by pipeline	Total	Total tonnes dry solids*kilometres travelled per year (ttds*km/year)	0	2021-2022 annual performance report tables (excluding tables 3A_3I)
8A.10	Total measure of intersiting 'work' done by tanker	Total	Total tonnes dry solids*kilometres travelled per year (ttds*km/year)	677	2021-2022 annual performance report tables (excluding tables 3A_3I)
8A.11	Total measure of intersiting 'work' done by truck	Total	Total tonnes dry solids*kilometres travelled per year (ttds*km/year)	664	2021-2022 annual performance report tables (excluding tables 3A_3I)

8A.12	Total measure of intersiting 'work' done (all forms of transportation)	Total	Total tonnes dry solids*kilometres travelled per year (ttds*km/year)	1341	2021-2022 annual performance report tables (excluding tables 3A_3I)
8A.13	Total measure of intersiting 'work' done by tanker (by volume transported)	Total	Metres cubed*kilometres travelled per year (m3*km/year)	20076846	2021-2022 annual performance report tables (excluding tables 3A_3I)
8A.14	Total measure of 'work' done in sludge disposal operations by pipeline	Total	Total tonnes dry solids*kilometres travelled per year (ttds*km/year)	0	2021-2022 annual performance report tables (excluding tables 3A_3I)
8A.15	Total measure of 'work' done in sludge disposal operations by tanker	Total	Total tonnes dry solids*kilometres travelled per year (ttds*km/year)	0	2021-2022 annual performance report tables (excluding tables 3A_3I)
8A.16	Total measure of 'work' done in sludge disposal operations by truck	Total	Total tonnes dry solids*kilometres travelled per year (ttds*km/year)	972	2021-2022 annual performance report tables (excluding tables 3A_3I)
8A.17	Total measure of 'work' done in sludge disposal operations (all forms of transportation)	Total	Total tonnes dry solids*kilometres travelled per year (ttds*km/year)	972	2021-2022 annual performance report tables (excluding tables 3A_3I)
8A.18	Total measure of 'work' done by tanker in sludge disposal operations (by volume transported)	Total	Metres cubed*kilometres travelled per year (m3*km/year)	0	2021-2022 annual performance report tables (excluding tables 3A_3I)
8A.19	Chemical P sludge as % of sludge produced at STWs	Total	Percentage (%)	14.08	2021-2022 annual performance report tables (excluding tables 3A_3I)
8D.1	% Sludge - untreated	By incumbent By 3rd party sludge service providers	%	Incumbent: 0% 3rd Party Sludge provider: 0%	2021-2022 annual performance report tables (excluding tables 3A_3I)
8D.2	% Sludge treatment process - raw sludge liming	By incumbent By 3rd party sludge service providers	%	Incumbent: 0% 3rd Party Sludge provider: 0%	2021-2022 annual performance report tables (excluding tables 3A_3I)
8D.3	% Sludge treatment process - conventional AD	By incumbent By 3rd party sludge service providers	%	Incumbent: 0% 3rd Party Sludge provider: 0%	2021-2022 annual performance report tables (excluding tables 3A_3I)
8D.4	% Sludge treatment process - advanced AD	By incumbent By 3rd party sludge service providers	%	Incumbent: 100% 3rd Party Sludge provider: 0%	2021-2022 annual performance report tables (excluding tables 3A_3I)
8D.5	% Sludge treatment process - incineration of raw sludge	By incumbent By 3rd party sludge service providers	%	Incumbent: 0% 3rd Party Sludge provider: 0%	2021-2022 annual performance report tables (excluding tables 3A_3I)
8D.6	% Sludge treatment process - other (specify)	By incumbent By 3rd party sludge service providers	%	Incumbent: 0% 3rd Party Sludge provider: 0%	2021-2022 annual performance report tables (excluding tables 3A_3I)
8D.7	% Sludge treatment process - Total	By incumbent By 3rd party sludge service providers	%	Incumbent: 100% 3rd Party Sludge provider: 0%	2021-2022 annual performance report tables (excluding tables 3A_3I)
8D.8	% Sludge disposal route - landfill, raw	By incumbent By 3rd party sludge service providers	%	Incumbent: 0% 3rd Party Sludge provider: 0%	2021-2022 annual performance report tables (excluding tables 3A_3I)
8D.9	% Sludge disposal route - landfill, partly treated	By incumbent By 3rd party sludge service providers	%	Incumbent: 0% 3rd Party Sludge provider: 0%	2021-2022 annual performance report tables (excluding tables 3A_3I)
8D.10	% Sludge disposal route - land restoration/ reclamation	By incumbent By 3rd party sludge service providers	%	Incumbent: 0% 3rd Party Sludge provider: 0%	2021-2022 annual performance report tables (excluding tables 3A_3I)
8D.11	% Sludge disposal route - sludge recycled to farmland	By incumbent By 3rd party sludge service providers	%	Incumbent: 100% 3rd Party Sludge provider: 0%	2021-2022 annual performance report tables (excluding tables 3A_3I)
8D.12	% Sludge disposal route - other (specify)	By incumbent	%	Incumbent: 0%	2021-2022 annual performance report tables (excluding tables 3A_3I)

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		By 3rd party sludge service providers		3rd Party Sludge provider: 0%	
8D.13	% Sludge disposal route - Total	By incumbent By 3rd party sludge service providers	%	Incumbent: 100% 3rd Party Sludge provider: 0%	2021-2022 annual performance report tables (excluding tables 3A_3I)
A1	Total number of contracts held with a third party at end of the financial year	2021-22 value	Number	2	APR22 Bioresources Market Monitoring table
A2	Total amount paid on contracts during the financial year	2021-22 value	£000	1291854	APR22 Bioresources Market Monitoring table
A3	Number of different suppliers at the year end	2021-22 value	Number	2	APR22 Bioresources Market Monitoring table
A4	Number of contracts ended during the year	2021-22 value	Number	1	APR22 Bioresources Market Monitoring table
A5	Number of contracts renewed during the year	2021-22 value	Number	1	APR22 Bioresources Market Monitoring table
A6	Number of new contracts that have been agreed during the year	2021-22 value	Number	0	APR22 Bioresources Market Monitoring table
B1	Number of formal tenders you issued during the year	2021-22 value	Number	0	APR22 Bioresources Market Monitoring table
B2	Total number of bids received on all your tenders	2021-22 value	Number	3	APR22 Bioresources Market Monitoring table
B3	Number of tenders you awarded during the year	2021-22 value	Number	1	APR22 Bioresources Market Monitoring table
C1	Number of offers made by a third party outside the formal tender process during the financial year	2021-22 value	Number	0	APR22 Bioresources Market Monitoring table
C2	The number of successful offers	2021-22 value	Number	0	APR22 Bioresources Market Monitoring table
D1	Total quantity of sludge produced in performance of the company's functions as a sewerage undertaker	2021-22 value	Total tonnes dry solids per year (ttds/ year)	73.46	APR22 Bioresources Market Monitoring table
D2	Quantity of sludge treated in-house	2021-22 value	Total tonnes dry solids per year (ttds/ year)	73.46	APR22 Bioresources Market Monitoring table
D3	Quantity of sludge treated by other regulated companies and their associated companies	2021-22 value	Total tonnes dry solids per year (ttds/ year)	0.00	APR22 Bioresources Market Monitoring table
D4	Quantity of sludge treated by non-regulated companies	2021-22 value	Total tonnes dry solids per year (ttds/ year)	0.00	APR22 Bioresources Market Monitoring table
D5	Number of contracts to supply sludge treatment	2021-22 value	Number	0	APR22 Bioresources Market Monitoring table
D6	Number of suppliers with contracts for sludge treatment	2021-22 value	Number	0	APR22 Bioresources Market Monitoring table
D7	Number of formal / informal approaches from other regulated companies and their associated companies to provide sludge treatment services.	2021-22 value	Number	0	APR22 Bioresources Market Monitoring table
D8	Number of formal / informal approaches from non-regulated companies to provide sludge treatment services	2021-22 value	Number	0	APR22 Bioresources Market Monitoring table
E1	Total quantity of sludge transported by road	2021-22 value	Total tonnes dry solids (ttds)	59.80	APR22 Bioresources Market Monitoring table
E2	Quantity of sludge transported by road in-house by your own bioresources service	2021-22 value	Total tonnes dry solids (ttds)	56.20	APR22 Bioresources Market Monitoring table
E3	Quantity of sludge transported by road by a third party	2021-22 value	Total tonnes dry solids (ttds)	3.59	APR22 Bioresources Market Monitoring table
E4	Number of contracts to provide sludge transport services	2021-22 value	Number	1	APR22 Bioresources Market Monitoring table

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E5	Number of suppliers with contracts for sludge transportation	2021-22 value	Number	1	APR22 Bioresources Market Monitoring table
F1	Total quantity of sludge recycled or disposed	2021-22 value	Total tonnes dry solids (ttds)	27.30	APR22 Bioresources Market Monitoring table
F2	Quantity of sludge recycled or disposed in-house by your own bioresources service	2021-22 value	Total tonnes dry solids (ttds)	27.30	APR22 Bioresources Market Monitoring table
F3	Quantity of sludge recycled by a third party	2021-22 value	Total tonnes dry solids (ttds)	0.00	APR22 Bioresources Market Monitoring table
F4	Number of contracts held to provide sludge recycling or disposal services	2021-22 value	Number	1	APR22 Bioresources Market Monitoring table
F5	Number of suppliers with contracts for sludge recycling or disposal	2021-22 value	Number	1	APR22 Bioresources Market Monitoring table

[1]The maintenance and integrity of NWL's website is the responsibility of the Directors; the work carried out by us does not involve consideration of these matters and, accordingly, we accept no responsibility for any changes that may have occurred to the reported Subject Matter Information or Reporting Criteria when presented on NWL's website

Appendix 1

Northumbrian Water Limited (NWL) has prepared selected information within its Annual Performance Report (APR) in accordance with the following reporting criteria. This reporting criteria has been based upon and informed by Ofwat published guidance to support water companies with reporting associated with their APR and Cost Assessment tables reporting, namely:

- RAG 2.08 - Guideline for classification of costs across the price controls (February 2021);
- RAG 4.10 - Guideline for the table definitions in the annual performance report (November 2021);
- RAG 4.09 - Appendix 2 (Water resources further guidance) (February 2021);
- PR19 final determinations Northumbrian Water – Outcomes performance commitment appendix (December 2019);
- APR-2021-22 Tables titled “Proforma-tables-2021-22.xlsx”; and
- RAG query logs 2021-22.

Where necessary, NWL have expanded upon this Ofwat published guidance to create reporting criteria that satisfy the requirements of International Standard of Assurance Engagements (ISAE) 3000 revised, which also serves to provide clarity on how it has applied the standard Ofwat guidance to the specific circumstances of its business and its network.

Unless specified within the reporting criteria, all data has been reported for the regulatory reporting year (1 April 2021 – 31 March 2022).

Row Reference	Row Title	Column Title	Unit of Measure	Northumbrian Water Limited's reporting criteria
3A.1	Water quality compliance (CRI)	Current reporting year	Number	This measure is the water quality measure for water quality compliance. The measure is expressed as a numerical compliance risk index (CRI) score and is based on the calendar year (1 January 2021 - 31 December 2021). The definition for this performance commitment is set by the Drinking Water Inspectorate (DWI), August 2018, in collaboration with the industry as per the following guidance: DWI COMPLIANCE RISK INDEX (CRI) | Ofwat A CRI score is calculated for every individual compliance failure within all water supply zones, authorised supply points, treatment works and service reservoirs. The annual CRI for the company, for the calendar year, is the sum of the individual CRI scores for every compliance failure reported during that year. The measure is based on up to 55 parameters which are determined by the DWI, where data is obtained through sampling. Each sampling failure is given a CRI score depending on sampling point: i. Water supply zones = parameter score x assessment score x population affected (the population within the water supply zone impacted) / total company population served; ii. Supply point and treatment works = parameter score x assessment score x volume supplied (m^3/day) (by that supply point / treatment works impacted) / total daily volume supplied by the company (m^3/day); or iii. Service reservoirs = parameter score x assessment score x reservoir capacity (m^3) (of the service reservoir impacted) / total service reservoir capacity of the company (m^3); where ● A water supply zone is defined as the defined as the largest area of a water company's supply system where all customers have the same supply risk. - A supply point is defined as an individual point of service on the customer premises (i.e. a customer tap); ● A treatment works is defined as a site or plant whereby processes and technologies used to remove contaminants from water are carried out. ● A service reservoir is defined as a place or structure where water from a water treatment works is stored for delivery to other service reservoirs for distribution to the consumers of a water supply district ● The parameter score is based on different criteria reflective of the nature of the parameter. This can include human health concerns, aesthetic concerns or regulatory impact concerns ● The assessment score is based on an assessment by the DWI of how well the wellbeing and interests of consumers were protected by best practice in management of compliance failures. The water quality sampling programme covers the geographical region that NWL supplies with water, as stipulated by the Drinking Water Inspectorate guidance. The sampling programme is agreed with the Drinking Water Inspectorate at the beginning of the calendar year. The compliance percentage is based on the results of the planned water quality samples only. All 55 parameters, as set out in the Water Supply Regulations 2016, are in scope. Individual CRI scores and the annual CRI score for a company are provided by the DWI, and NWL reports its performance as this annual CRI score provided by the DWI.

3A.3	Leakage NW region	Current reporting year	%	This measure is the percentage reduction of three year average leakage in megalitres per day (Ml/d) from the 2019-20 baseline. 2019/20 baseline total leakage is calculated as a three-year average of annual leakage values for 2017-18, 2018-19 and 2019- 20 and expressed in megalitres per day (Ml/d). Three-year average Leakage for 2021/22 reporting year is calculated from annual average leakage values for the reporting year (2021/22) and two preceding years (2019/20 and 2020/21) and expressed in Ml/d. It is reported for NWL's North East appointed region only where it supplies water treated water to its customers, i.e. not its Essex & Suffolk region. Percentage reduction (for the report year) = ((2019/20 baseline – Three-year average Leakage (for the report year)/ 2019/20 baseline)) * 100 Where this calculation results in a positive value, it corresponds to an increase in leakage in Ml/d compared to the baseline . Where this calculation results in a negative value it corresponds to a decrease in leakage in Ml/d compared to the baseline. Annual average leakage measures the volume of water that is lost across the water distribution network when delivering it from water treatment works to customer properties and is defined as the sum of distribution system leakage, including customer supply pipe leakage, plus service reservoir losses and trunk mains leakage measured in megalitres per day (Ml/d). It does not include internal plumbing losses (leaks that occur on the customer side of their stop tap). Distribution system leakage is calculated by establishing the baseline leakage through minimum night flows. Minimum night flows are measured at the District Meter Area ('DMA') level as a minimum flow during the fixed hour period (3am to 4am) when consumption is expected to be at its lowest, and therefore any residual flow after Legitimate Night Use ('LNU') is assumed to be leakage. Minimum Night Flow Leakage is calculated as follows: DMA night flow – (LNU x Hour to Day Factor) ▪ DMA Night flow is recorded during the fixed period of 3-4 am and measured using DMA "in" and "out" flow meters . ▪ LNU is an average allowance per property based on per capita consumption data and calculated for different property types (measured, unmeasured, household and non-household). The LNU rate is multiplied by the number of properties of the corresponding type within each DMA to derive a litres per hour value to deduct from night flow. ▪ The Hour to Day Factor is applied to account for reduced flow as a result of reducing water pressure within DMAs during night time. The pressure is reduced to protect the distribution area from bursts as a result of lower demand during the night. It is calculated as average daily pressure divided by night pressure and multiplied by 24 hours. Night pressure is calculated as average for the period of 3am to 4am; day pressure - average for the whole 24- hour period. Customer supply pipe losses are defined as leakage from customers' pipes between the highway boundary and the customer's stop tap. To estimate, NWL have analysed reported leaks for different property types (measured, unmeasured, household and non-household), and monitored a sample of properties to calculate the average supply pipe leakage, which is multiplied by the number of properties of each type to determine total supply pipe leakage. Trunk mains are defined as the length of mains between the start of the distribution system and the flow monitoring zones. Transfer mains leakage is estimated based on the length of main, multiplied by the assessed leakage rate per kilometre of main. Service reservoir losses have been estimated by measuring the change in depth of reservoir levels for a sample period over a period of time to calculate the volume of water lost over that period. Annual average leakage is reported as a post-Maximum Likelihood Estimation (MLE) weighted average Ml/day over the year. The MLE technique is used to distribute the volume of any unaccounted-for water in the water balance (distribution input compared to water consumption + leakage) calculation. Unaccounted for water occurs when the distribution input and the sum of the components of the water balance do not reconcile. To reconcile the water balance, the MLE method is used to distribute the unaccounted-for water according to the uncertainty in the components of the water balance through the use of confidence intervals. The total level of leakage is defined in the final reporting guidance for PR19 – Leakage, published on 27 March 2018: Reporting guidance – Leakage1

3A.3	Leakage ESW region	Current reporting year	%	This measure is the percentage reduction of three year average leakage in megalitres per day (Ml/d) from the 2019-20 baseline. 2019/20 baseline total leakage is calculated as a three-year average of annual leakage values for 2017-18, 2018-19 and 2019- 20 and expressed in megalitres per day (Ml/d). Three-year average Leakage for 2020/21 reporting year is calculated from annual average leakage values for the reporting year (2021/22) and two preceding years (2019/20 and 2020/21) and expressed in Ml/d. It is reported for NWL's Essex & Suffolk appointed region only where it supplies water treated water to its customers, i.e. not its North East region. Percentage reduction (for the report year) = ((2019/20 baseline – Three-year average Leakage (for the report year)/ 2019/20 baseline)) * 100 Where this calculation results in a positive value, it corresponds to an increase in leakage in Ml/d compared to the baseline. Where this calculation results in a negative value it corresponds to a decrease in leakage in Ml/d compared to the baseline. Annual average leakage measures the volume of water that is lost across the water distribution network when delivering it from water treatment works to customer properties and is defined as the sum of distribution system leakage, including customer supply pipe leakage, plus service reservoir losses and trunk mains leakage measured in megalitres per day (Ml/d). It does not include internal plumbing losses (leaks that occur on the customer side of their stop tap). Distribution system leakage is calculated by establishing the baseline leakage through minimum night flows. Minimum night flows are measured at the District Meter Area ('DMA') level as a minimum flow during the fixed hour period (3am to 4am) when consumption is expected to be at its lowest, and therefore any residual flow after Legitimate Night Use ('LNU') is assumed to be leakage. Minimum Night Flow Leakage is calculated as follows: DMA night flow – (LNU x Hour to Day Factor) ▪ DMA Night flow is recorded during the fixed period of 3-4 am and measured using DMA "in" and "out" flow meters . ▪ LNU is an average allowance per property based on per capita consumption data and calculated for different property types (measured, unmeasured, household and non-household). The LNU rate is multiplied by the number of properties of the corresponding type within each DMA to derive a litres per hour value to deduct from night flow. ▪ The Hour to Day Factor is applied to account for reduced flow as a result of reducing water pressure within DMAs during night time. The pressure is reduced to protect the distribution area from bursts as a result of lower demand during the night. It is calculated as average daily pressure divided by night pressure and multiplied by 24 hours. Night pressure is calculated as average for the period of 3am to 4am; day pressure - average for the whole 24- hour period. Customer supply pipe losses are defined as leakage from customers' pipes between the highway boundary and the customer's stop tap. To estimate, NWL have analysed reported leaks for different property types (measured, unmeasured, household and non-household), and monitored a sample of properties to calculate the average supply pipe leakage, which is multiplied by the number of properties of each type to determine total supply pipe leakage. Trunk mains are defined as the length of mains between from the start of the distribution system and the flow monitoring zones. Transfer mains leakage is estimated based on the length of main, multiplied by the assessed leakage rate per kilometre of main. Service reservoir losses have been estimated by measuring the change in depth of reservoir levels for a sample period over a period of time to calculate the volume of water lost over that period. Annual average leakage is reported as a post-Maximum Likelihood Estimation (MLE) weighted average Ml/day over the year. The MLE technique is used to distribute the volume of any unaccounted-for water in the water balance (distribution input compared to water consumption + leakage) calculation. Unaccounted for water occurs when the distribution input and the sum of the components of the water balance do not reconcile. To reconcile the water balance, the MLE method is used to distribute the unaccounted-for water according to the uncertainty in the components of the water balance through the use of confidence intervals. The total level of leakage is defined in the final reporting guidance for PR19 – Leakage, published on 27 March 2018: Reporting guidance – Leakage1
3A.4	Per capita consumption	Current reporting year	%	This measure is the percentage reduction of three year average per capita consumption (PCC) in litres per person per day (l/p/d) from the 2019-20 baseline. 2019/20 baseline PCC is calculated as a three-year average of annual PCC values for 2017-18, 2018-19 and 2019- 20 and expressed in litres per person per day (l/p/d). Three-year average PCC for 2021/22 reporting year is calculated from annual PCC values for the reporting year (2021/22) and two preceding years (2019/20 and 2020/21) and expressed in (l/p/d). Percentage reduction (for the report year) = ((2019/20 baseline – Three-year average PCC (for the report year) / 2019/20 baseline)) * 100 Where this calculation results in a positive value, it corresponds to an increase of the PCC in l/p/d compared to the baseline . Where this calculation results in a negative value it corresponds to a reduction of the PCC in l/p/d compared to the baseline . PCC is calculated using the following formula: PCC = (Measured Household consumption + Unmeasured Household Consumption) / Total household population It is reported as the annual arithmetic mean per capita consumption expressed in litres per person per day (l/p/d). The measure uses post MLE (maximum likelihood estimation) data for measured household consumption and unmeasured household consumption, see 3A.3 for full details of the MLE technique applied. Measured Household consumption is the volume of water used by each measured (metered) household within NWL's water supply area, including meter under-registration (an estimate for meters not recording as much flow as there has actually been) but excluding supply pipe leakage (leakage from customers' pipes between the highway boundary and the customer's stop tap). It is calculated from NWL's billing system, including actual reads and estimated reads. Unmeasured Household consumption is the volume of water used by each unmeasured household excluding supply pipe leakage. It is calculated from average unmeasured per household consumption (PHC expressed in l/household/day) multiplied by the number of unmeasured households. Total household population is taken directly from "4R.30 Household Population" please refer to its criteria for how this is calculated. Per capita consumption (PCC) is defined in the Final reporting guidance for PR19 – Per Capita Consumption, published on 27 March 2018: Reporting guidance – Per Capita Consumption1

3A.6	Unplanned outage	Current reporting year	%	This measure is defined as the annualised unavailable flow, based on the peak week production capacity (or PWPC), across all of NWL's Water Treatment Works (WTWs). This measure is proportionate to both the frequency of asset failure as well as the criticality and scale of the assets that are causing an outage. It is reported as the temporary loss of peak week production capacity (PWPC) in the reporting year weighted by the duration of the loss (in days). Unplanned outage for each water production site is calculated separately and then summed over the reporting year to give a total actual unplanned outage for the water resource zone Included within this measure are outages relating to unplanned causes such as asset failure only (unplanned outages). Outages relating to planned causes such as when assets are taken out of supply or made unavailable for supply to enable planned maintenance or capital works to be completed are excluded from the measure (planned outages). Only unplanned outage events which exceed 24 hours in duration should be included in this measure. An individual site's PWPC is calculated as the highest recorded 7 day rolling average Distribution Input obtained from the site in the past 5 years. Further detail as to what constitutes PWPC and Planned Outages and Unplanned Outages, they are defined as per the following guidance: https://www.ofwat.gov.uk/wp-content/uploads/2018/03/20190327-6.-Unplanned-outagefinal-reporting-guidance.pdf For each unplanned outage the impact of the outage is recorded as the reduction in peak week production capacity. For outages resulting in the total loss of water production from the site then the impact of the outage is recorded as the total peak week production capacity for the site, whereas for others that lead to only a reduction in PWPC then the difference between PWPC and the attained production capacity should be reported as the impact of the outage. An individual unplanned outage is calculated using the following calculation: (Reduction in PWPC*Duration in days)/365. The percentage reported is calculated using the following calculation: (Total Unplanned Outage Reduction in PWPC for the year/ Current Company level PWPC)*100 Further exclusions apply whereby if these are the reason for the outage then the impact of any outage as a result of these is not included in the reporting of this measure: - Excluded sites: Sites not in service as per the annual production plan, sites used only in the case of an emergency or sites only required to be in service during a dry year. - Outages of 24 hours or less in duration. - Outages where we have proactively restricted abstraction or production from a given WTW because of variable raw water quality. - Outages caused by raw water quality outside of the normal operating band for a given works. - Outages caused or prolonged by extreme weather events
3A.7	Visible leak repair time	Current reporting year	Days	This measure is reported as the average (mean) number of calendar days that it takes to find and fix visible leaks reported to the company by customers or third parties. For the purposes of reporting this measure, leaks will only be included if they were first reported to NWL by a customer, i.e. a member of the public, or a third party. If they were identified by NWL staff during the course of business, they are excluded from the reporting of this measure. For every leak included within the calculation of this measure, the number of days it takes to find and fix the leak starts from the time of the first inbound contact received by NWL from a customer or third party. The timer for how long a leak took NWL to find and repair runs until the job to fix the leak has been successfully completed. Both the start and end time for each leak are recorded in the company's corporate systems. The difference between the start and end time is the time taken to repair the leak. The average times taken to repair each leak are added together and divided by the total number of repairs performed on leaks (as defined above) reported within the year to calculate the performance of this measure. Average time is expressed to one decimal place, for example: 5 days 12 hours is reported as 5.5 days. A leak reported at 23:59 Monday and repaired 00:01 Wednesday, would have lasted 1.0 days. A leak reported at 23:59 Monday and repaired at 12:00 Wednesday would have lasted 1.5 days. Leaks repaired in the 1 April 2021 to 31 March 2022 reporting period are included. Leaks reported in one reporting period but repaired in the next (i.e. the job runs over the year end), are included in the subsequent year's figures and excluded from the current year reporting. All reported visible leaks from the company's network are included in this measure. Leaks that are found to be on customer owned pipes, including customer supply pipes, are excluded as they the customer's, NWL's, responsibility to fix. Inbound contacts can come through all communication channels to NWL including email, phone call, website message, social media etc.
3A.8	Voids	Current reporting year	%	The average (mean) number of household properties classified as void as a percentage of the average (mean) total number of household properties within the company's supply area across the reporting year. The average voids is calculated by determining the number of voids connected in every month of the reporting year (1 April 2021 – 1 April 2022) and dividing by 13 so that reporting encompasses the position as at the start of the year and the end of the year. The average total properties is calculated by determining the number of residential properties connected every month of the reporting year (1 April 2021 – 1 April 2022) and dividing by 13 so that reporting encompasses the position as at the start of the year and the end of the year. Properties included within the reporting for this measure are defined as those within the company's supply area, which are connected for a water service only, a wastewater service only, or both water and wastewater services. A property connected for both water and wastewater services still only counts as a single property. Only residential properties are included, business (non-household) properties are excluded. A void property is defined as one that meets the above criteria but does not receive a charge for its services (water, wastewater, or both) because it is unoccupied. *Note: for the purposes of the definition of "void" above, a property that is occupied but not charged for the service(s) it receives is considered void, unless it has been deemed uneconomical to bill, meaning: the incremental cost of sending a bill and the normal incremental cost of processing a payment made promptly in response to the bill is likely to be greater than the bill itself year.* The average is calculated by calculating the percentage of void properties (as per the above definition) for each month of the reporting year and reporting the average (mean) result of these.

3A.10	Discoloured water contacts	Current reporting year	Number	The total number of contacts that the company receives from consumers due to the drinking water they have drawn from their tap being “discoloured” per 10,000 population that NWL serves across its water supply network. A customer contact is defined as one where a consumer is raising a concern about their drinking water quality based on an observation (or perception) that it is anything other than “normal”. A customer making general enquiries as to what “normal” or “abnormal” drinking water quality factors could be are excluded because the aim of their contact is to gain an understanding rather than to raise an issue. If such a contact moves from an initial enquiry to a water quality contact, then it should be recorded as a contact. This measure is concerned only with contacts that have been received from consumers with regards the appearance of their drinking water. This could include: an unusual colour, particles, animalcules, or other characteristics not expected of the appearance of “normal” drinking water. For full details of what constitutes an “appearance” related contact see *The consumer contact classification guidance is defined by the DWI in Information Letter 1/2006, 6 January 2006 (section 4.3):* *https://www.ofwat.gov.uk/wp-content/uploads/2019/12/DWI-Customer-contacts-about-water-quality-appearance.pdf* Contacts received with regards another water quality reason other than appearance will be excluded from this measure. Contacts can be received through all communication channels to NWL including email, phone call, website message, social media etc. The total population used to calculate the measure is the same as the resident population reported to the Drinking Water Inspectorate to support its own drinking water quality reporting for the relevant period. For the current reporting year, NWL has reported a population of 4,485,835.
3A.11	Taste and smell contacts	Current reporting year	Number	The total number of contacts that the company receives from consumers due to the “taste and odour” of the drinking water they have drawn from their tap per 10,000 population that NWL serves across its water supply network. A customer contact is defined as one where a consumer is raising a concern about their drinking water quality based on an observation (or perception) that it is anything other than “normal”. A customer making general enquiries as to what “normal” or “abnormal” drinking water quality factors could be are excluded because the aim of their contact is to gain an understanding rather than to raise an issue. If such a contact moves from an initial enquiry to a water quality contact, then it should be recorded as a contact. This measure is concerned only with contacts that have been received from consumers with regards the taste and odour of their drinking water. This could include a taste or odour of, amongst others, a: disinfectant, a swimming pool, earthy or musty, petrol / diesel, or other taste or smell not characterised as “normal” for drinking water. For full details of what constitutes an “appearance” related contact see *The consumer contact classification guidance is defined by the DWI in Information Letter 1/2006, 6 January 2006 (section 4.4):* *https://www.ofwat.gov.uk/wp-content/uploads/2019/12/DWI-Customer-contacts-about-water-quality-appearance.pdf* Contacts received with regards another water quality reason other than taste and odour will be excluded from this measure. Contacts can be received through all communication channels to NWL including email, phone call, website message, social media etc. The total population used to calculate the measure is the same as the resident population reported to the Drinking Water Inspectorate to support its own drinking water quality reporting for the relevant period. For the current reporting year, NWL has reported a population of 4,485,835.
3A.12	Event Risk Index (ERI)	Current reporting year	Number	The Event Risk Index (ERI) is a Drinking Water Inspectorate (DWI) measure of water quality reportable events. Individual events are provided a score by the DWI using the following formula: **ERI = (seriousness x assessment outcome x impact) / total population served by the company;** where seriousness, assessment outcome and impact are determined by the DWI through following its methodology titled “DWI EVENT RISK INDEX” dated August 2018: DWI EVENT RISK INDEX (ERI) | Ofwat The measure is the company’s performance for the calendar year and is the sum of the individual ERI scores received from the DWI throughout the reporting period. Calendar year performance 2021 will be reported. The measure covers the geographical region that NWL supplies with water, as stipulated by the Drinking Water Inspectorate guidance.
3A.14	Abstraction incentive mechanism (AIM)	Current reporting year	Megalitres	The abstraction incentive mechanism (AIM) reduces abstraction of water at environmentally sensitive sites when flow or levels are below an agreed point otherwise known as a trigger. The trigger point is based on a level or flow, below which the AIM is considered to be “switched on”. This trigger is related to the point at which environmental damage is caused and is intended to prevent this from happening or ameliorate the negative impacts. The company has one such site, Ormesby Broad, which is considered when reporting this measure. No other sites are included. The trigger threshold for Ormesby Broad is -0.2 meters Above Ordnance Datum (AOD) (sea level) (i.e. 0.2m below ordnance datum) and it has a baseline of 8.6 Megalitres per day (Ml/d). The AIM performance in Ml (megalitres) for the current reporting year is calculated as follows: A = (F-T) * P where: A = AIM performance in Ml F = average daily abstraction (Ml/d) during period when flows are at or below the trigger threshold T = baseline average daily abstraction (Ml/d) during period when flows are at or below the trigger threshold P = length of period (days) when flows are at or below the trigger threshold The trigger threshold is determined by taking daily water depth readings at the Ormesby Broad to determine whether the trigger has been breached. The average daily abstraction is calculated by the company using flow meters at abstraction points on the Ormesby Broad to measure the volume of water it is abstracting from Ormesby Broad each day. If the conditions to trigger AIM have not been met throughout the whole reporting year, then N/A is reported. The abstraction incentive mechanism is defined in the reporting guidance – Guidelines on the abstraction incentive mechanism, published in 2016: Guidelines on the abstraction incentive mechanism

3B.2	Pollution incidents	Current reporting year	Number	This measure is the total number of pollution incidents (categories 1 to 3) per 10,000km of sewer length for which the company is responsible (across its whole wastewater network) in the calendar year 1 January 2021 to 31 December 2021, emanating from a discharge or escape of a contaminant from a company sewerage asset affecting the water environment. This does not include incidents impacting on air or land. Incidents affecting amenity of the water environment, e.g. Bathing Waters, are included. This does not include pollution incidents from transferred/adopted private pumping stations or transferred/adopted private rising mains (transferred in 2016). Pollution incidents attributed to the clean water distribution system and water treatment works are not included in this total pollution incidents sewerage definition. The actual number of pollution incidents (categories 1 to 3) used to calculate this measure are those recorded on the Environment Agency's (EA) National Incident Recording System (NIRS) database. The pollution incidents can occur across the wastewater network including: sewage treatment works, foul sewers, combined sewer overflows, rising mains, pumping stations, storm tanks, and surface water outfalls and are included on the NIRS through self-reporting to the EA by NWL, the public reporting directly to the EA, or through EA identification. For all pollution incidents reported, the EA determines the category it is placed into depending on its severity. The categories are defined as follows: – Category 1 – Major, serious, persistent and/or extensive impact or effect on the environment, people and/or property; – Category 2 – Significant impact or effect on the environment, people and/or property; – Category 3 – Minor or minimal impact or effect on the environment, people and/or property Further information how the categories are defined and determined can be found in the following EA guidance: the Common Incident Classification Scheme (CICS) | Ofwat The total length of sewer mains for which the company is responsible is set by the EA in the following guidance document: Environment Agency water and sewerage company Environmental Performance Assessment (EPA) methodology (version 9) for 2021 to 202 Category 4 incidents are excluded from the measure. Note: NWL's wastewater network covers only its North East region, it does not cover its Essex & Suffolk region where it provides water services only, not wastewater services.
3B.4	Treatment Works Compliance	Current reporting year	%	This measure is the percentage of treatment works whose discharges (flows of water from a Sewage Treatment Works or Water Treatment Works into the environment, e.g. a river) are compliant with numeric environmental permits in a calendar year (1 January 2021 – 31 December 2022). Treatment Works Compliance is reported as the number of sites that have passed (as a percentage of the total number of discharge sites) and not the number of individual sample passes as a percentage of the number of individual samples taken. It is a measure of the capability of the company's wastewater and water treatment works to treat and dispose of wastewater in line with the company's discharge permit conditions. It is calculated as follows: (B - A) / B * 100 Where: A = No. of sites (STWs and WTWs) with numeric limits confirmed as failing relevant conditions in the calendar year; and B = No. of discharges on the EA register during the calendar year (in force). A non-compliant discharge is defined as a level of concentration of a parameter in a wastewater/water quality sample taken at a treatment works that falls out of the acceptable level as defined in the individual treatment works permit. Further details of what constitutes a breach can be found in the EA guidance document: Environment Agency Environmental Performance Assessment (EPA) Methodology (version 3) The measure excludes non-sanitary failures (that is, failures not related to sewage, such as industrial chemicals, metals or hazardous substances and technical breaches (for example a sample that has failed because it has been collected from the wrong location or where a sample was taken but it did not have the correct characterises to perform sampling procedures upon it so no result was achieved). A sample is defined as a wastewater quality sample in line with the Environment Agency guidance, as set out in the links below. The samples are tested for the concentration of a range of parameters as set out the individual permits for each wastewater treatment works. The samples are taken at the designated sampling point at each wastewater treatment works and are carried under a UKAS accredited process. The sampling programme conducted across the calendar year follows the Environment Agency guidance below, an is agreed with the Environment Agency in advance of the calendar year beginning of the calendar year: ▪ Waste water treatment works: treatment monitoring and compliance limits - GOV.UK; and ▪ Water companies: operator self monitoring (OSM) environmental permits - GOV.UK
3B.8	Bathing water compliance	Current reporting year	%	This measure is the percentage of designated bathing waters in the company's northern operating area which are classified as "Good" or "Excellent", as reported by Defra, and those which are classified as "Satisfactory" or "Poor" by Defa but the bathing water quality classification was clearly as a result of non-water company sources alone, as agreed and signed-off by with the EA This is a calendar year measure, so 2021 performance is reported in the 31 March 2022 APR. The Defra assigned status for each bathing waters is calculated as a four year average of the water quality sample results taken for each bathing waters site. The sampling regime at each site is managed by the Environment Agency with the scores and status given to each bathing waters given to NWL by the Environment Agency and used to calculate percentage performance for this measure. NWL is responsible for 34 designated bathing waters sites as per Defra. This only includes sites in its North East region and not its Essex and Suffolk region. Note: If the Environment Agency is unable to take the requisite number of samples to classify a bathing waters, then it is not assigned a classification. During 2020, the EA was unable to obtain the necessary number of samples across all designated bathing waters, so it decided to not classify any bathing waters for 2020. As such, the four year average used to calculate individual bathing water classifications does not include 2020, and only includes 2018, 2019 and 2021.

3E.1	Risk of severe restrictions in a drought	Current reporting year	%	The overall measure is the percentage of the company's customer population 'at risk' of experiencing severe restrictions, i.e. standpipes or rota cuts as part of Emergency Drought Orders, if a 1-in-200 year drought was to occur. The population is considered to be 'at risk' if the supply-demand balance calculation in each water resource zone (as used for water resource planning) for the 1-in-200 year drought event results in a shortfall (deficit). This will occur when the theoretical deployable output minus outage allowance (available supply), minus exports, plus imports, is less than the dry year demand plus base year target headroom (demand plus uncertainty). It is calculated using the following formula: *At risk if, DO – OA – exports + imports < DD + TH, where:* – Deployable output (supply) = DO – Outage allowance (unavailable supply) = OA – Dry year demand = DD – Target headroom (uncertainty) = TH The percentage of customers at risk is calculated by dividing the total numbers of customers at risk, i.e. population of each water resource zone considered to be at risk, by the total number of population served by the company across all its water resource zones. The data and assumptions used to calculate the above are consistent with those reported in the company's published Water Resources Management Plans 2019 (WRMPs19) linked: Current WRMP (2020-2025); which at the time of publication were calculated by following the linked guidance: Drought resilience metric - Risk of severe restrictions in a drought | Ofwat Note: Within its WRMPs19, NWL reported that 0% of the population it serves is at risk of experiencing severe restrictions if a 1-in-200 year drought for the reporting year, so, as per the above guidance, it has reported 0% performance for this measure in the current reporting year.
3E.12	Bioresources	Current reporting year	%	The percentage of the total volume of sludge, in tonnes dry solids (tDS), produced in the reporting year by the company that has been effectively treated by an advanced sludge treatment process (Advanced Anaerobic Digestion) and beneficially recycled to land. The measure is calculated as follows: *a / b = c, where:* *a (% raw tDS treated by AAD) = (raw tDS treated by AAD - raw tDS not treated by AAD) / total raw sludge (tDS) produced and imported;* *b (% biosolids tDS to land) = (biosolids tDS to Land- tDS not to land) / total final biosolids; and* *c (% bioresources treated through AAD and to land) = % raw tDS treated by AAD x % biosolids tDS to land* Any sludge and organic wastes imported from other water companies or third parties that have been traded under the bioresources price control should be added to the raw tDS figures treated and produced in the above calculation. Raw sludge is measured in tDS and defined as the volume of all the untreated sewage sludge produced by in-area wastewater treatment processes in the report year which is either treated by the incumbent or remains untreated prior to disposal. Grit and screenings removed through preliminary treatment processes should be excluded. All sludge produced by all NWL in-area wastewater treatment processes which is either treated by the incumbent or remains untreated prior to disposal in the report year should be included. Raw sludge treated by AAD is measured in tDS and defined as the total volume of sludge of all the raw sludge above that was treated using an AAD method, which includes following: Thermal Hydrolysis Process, Enzymic Hydrolysis, two- stage + Publicly Available Specification 110 certified and Acid Phase Digestion. Raw sludge treated by another means including liming, conventional AD or incineration would not be included. Biosolids is measured in tDS and defined as the volume of all treated sludge produced by the company (regardless of treatment method). Biosolids to land measured in tDS is defined as the volume of all treated sludge above that has been disposed of through recycling it to farmland to be used as a fertiliser. Biosolids produced and disposed of through another means, including to landfill or for land reclamation would not be included.
3F.4	Per capita consumption (PCC)	Standardising numerical value	Number	The annual average resident population served across the company's area of supply for water distribution. This includes billed households supplied with unmeasured and measured water and billed businesses supplied with unmeasured and measured water.Total household population is taken directly from "4R.30 Household Population" please refer to its criteria forthe commentary on how this is calculated. Per capita consumption (PCC) is defined in the Final reporting guidance for PR19 – Per Capita Consumption, published on 27 March 2018: Reporting guidance – Per Capita Consumption1
		Performance level – Actual (current reporting year)	Ml/d	The sum of post MLE measured and post MLE unmeasured household consumption in 2021-22 in ML per day. Measured Household consumption is the volume of water used by each measured (metered) household within NWL's water supply area, including meter under-registration (an estimate for meters not recording as much flow as there has actually been) but excluding supply pipe leakage (leakage from customers' pipes between the highway boundary and the customer's stop tap). It is calculated from NWL's billing system, including actual reads and estimated reads. Unmeasured Household consumption is the volume of water used by each unmeasured household excluding supply pipe leakage. It is calculated from average unmeasured per household consumption (PHC expressed in l/household/day) multiplied by the number of unmeasured households. The measure uses post MLE (maximum likelihood estimation) data for measured household consumption and unmeasured household consumption, see 3A.3 for full details of the MLE technique applied. Per capita consumption (PCC) is defined in the Final reporting guidance for PR19 – Per Capita Consumption, published on 27 March 2018: Reporting guidance – Per Capita Consumption1

		Performance level – Calculated (i.e. standardised)	Litres per day	The current year PCC is calculated as: *PCC = The sum of post MLE measured and post MLE unmeasured household consumption in 2021-22 in ML per day / annual average resident population served across the company's area of supply for water distribution.* Where: It is reported as the annual arithmetic mean per capita consumption expressed in litres per person per day (l/p/d). The measure uses post MLE (maximum likelihood estimation) data for measured household consumption and unmeasured household consumption, see 3A.3 for full details of the MLE technique applied. Measured Household consumption is the volume of water used by each measured (metered) household within NWL's water supply area, including meter under-registration (an estimate for meters not recording as much flow as there has actually been) but excluding supply pipe leakage (leakage from customers' pipes between the highway boundary and the customer's stop tap). It is calculated from NWL's billing system, including actual reads and estimated reads. Unmeasured Household consumption is the volume of water used by each unmeasured household excluding supply pipe leakage. It is calculated from average unmeasured per household consumption (PHC expressed in l/household/day) multiplied by the number of unmeasured households. Per capita consumption (PCC) is defined in the Final reporting guidance for PR19 – Per Capita Consumption, published on 27 March 2018: Reporting guidance – Per Capita Consumption1
3F.6	Per capita consumption (PCC)	Performance level – actual (2021-22)	Litres per day	The current year PCC is calculated as: *PCC = The sum of post MLE measured and post MLE unmeasured household consumption in 2021-22 in ML per day / annual average resident population served across the company's area of supply for water distribution.* Where: It is reported as the annual arithmetic mean per capita consumption expressed in litres per person per day (l/p/d). The measure uses post MLE (maximum likelihood estimation) data for measured household consumption and unmeasured household consumption, see 3A.3 for full details of the MLE technique applied. Measured Household consumption is the volume of water used by each measured (metered) household within NWL's water supply area, including meter under-registration (an estimate for meters not recording as much flow as there has actually been) but excluding supply pipe leakage (leakage from customers' pipes between the highway boundary and the customer's stop tap). It is calculated from NWL's billing system, including actual reads and estimated reads. Unmeasured Household consumption is the volume of water used by each unmeasured household excluding supply pipe leakage. It is calculated from average unmeasured per household consumption (PHC expressed in l/household/day) multiplied by the number of unmeasured households. Per capita consumption (PCC) is defined in the Final reporting guidance for PR19 – Per Capita Consumption, published on 27 March 2018: Reporting guidance – Per Capita Consumption1
		Calculated performance level to compare against PCL's	%	This measure is the percentage reduction of three year average per capita consumption (PCC) in litres per person per day (l/p/d) from the 2019-20 baseline. 2019/20 baseline PCC is calculated as a three-year average of annual PCC values for 2017-18, 2018-19 and 2019- 20 and expressed in litres per person per day (l/p/d). Three-year average PCC for 2020/21 reporting year is calculated from annual PCC values for the reporting year (2021/22) and two preceding years (2019/20 and 2020/21) and expressed in (l/p/d). Percentage reduction (for the report year) = ((2019/20 baseline – Three-year average PCC (for the report year) / 2019/20 baseline)) * 100 Where this calculation results in a positive value, it corresponds to an increase of the PCC in l/p/d compared to the baseline . Where this calculation results in a negative value it corresponds to a reduction of the PCC in l/p/d compared to the baseline . PCC is calculated using the following formula: PCC = (Measured Household consumption + Unmeasured Household Consumption) / Total household population It is reported as the annual arithmetic mean per capita consumption expressed in litres per person per day (l/p/d). The measure uses post MLE (maximum likelihood estimation) data for measured household consumption and unmeasured household consumption, see 3A.3 for full details of the MLE technique applied. Measured Household consumption is the volume of water used by each measured (metered) household within NWL's water supply area, including meter under-registration (an estimate for meters not recording as much flow as there has actually been) but excluding supply pipe leakage (leakage from customers' pipes between the highway boundary and the customer's stop tap). It is calculated from NWL's billing system, including actual reads and estimated reads. Unmeasured Household consumption is the volume of water used by each unmeasured household excluding supply pipe leakage. It is calculated from average unmeasured per household consumption (PHC expressed in l/household/day) multiplied by the number of unmeasured households. Per capita consumption (PCC) is defined in the Final reporting guidance for PR19 – Per Capita Consumption, published on 27 March 2018: Reporting guidance – Per Capita Consumption1

3F1.5	Leakage	Performance level – actual (2021-22)	Ml/d	This measure is annual average leakage and expressed in megalitres per day (Ml/d). It is reported for NWL's North East appointed region only where it supplies water treated water to its customers, i.e. not its Essex & Suffolk region. Annual average leakage measures the volume of water that is lost across the water distribution network when delivering it from water treatment works to customer properties and is defined as the sum of distribution system leakage, including customer supply pipe leakage, plus service reservoir losses and trunk mains leakage measured in megalitres per day (Ml/d). It does not include internal plumbing losses (leaks that occur on the customer side of their stop tap). Distribution system leakage is calculated by establishing the baseline leakage through minimum night flows. Minimum night flows are measured at the District Meter Area ('DMA') level as a minimum flow during the fixed hour period (3am to 4am) when consumption is expected to be at its lowest, and therefore any residual flow after Legitimate Night Use ('LNU') is assumed to be leakage. Minimum Night Flow Leakage is calculated as follows: DMA night flow – (LNU x Hour to Day Factor) ▪ DMA Night flow is recorded during the fixed period of 3-4 am and measured using DMA "in" and "out" flow meters . ▪ LNU is an average allowance per property based on per capita consumption data and calculated for different property types (measured, unmeasured, household and non-household). The LNU rate is multiplied by the number of properties of the corresponding type within each DMA to derive a litres per hour value to deduct from night flow. ▪ The Hour to Day Factor is applied to account for reduced flow as a result of reducing water pressure within DMAs during night time. The pressure is reduced to protect the distribution area from bursts as a result of lower demand during the night. It is calculated as average daily pressure divided by night pressure and multiplied by 24 hours. Night pressure is calculated as average for the period of 3am to 4am; day pressure - average for the whole 24- hour period. Customer supply pipe losses are defined as leakage from customers' pipes between the highway boundary and the customer's stop tap. To estimate, NWL have analysed reported leaks for different property types (measured, unmeasured, household and non-household), and monitored a sample of properties to calculate the average supply pipe leakage, which is multiplied by the number of properties of each type to determine total supply pipe leakage. Trunk mains are defined as the length of mains between from the start of the distribution system and the flow monitoring zones. Transfer mains leakage is estimated based on the length of main, multiplied by the assessed leakage rate per kilometre of main. Service reservoir losses have been estimated by measuring the change in depth of reservoir levels for a sample period over a period of time to calculate the volume of water lost over that period. Annual average leakage is reported as a post-Maximum Likelihood Estimation (MLE) weighted average Ml/day over the year. The MLE technique is used to distribute the volume of any unaccounted-for water in the water balance (distribution input compared to water consumption + leakage) calculation. Unaccounted for water occurs when the distribution input and the sum of the components of the water balance do not reconcile. To reconcile the water balance, the MLE method is used to distribute the unaccounted-for water according to the uncertainty in the components of the water balance through the use of confidence intervals. The total level of leakage is defined in the final reporting guidance for PR19 – Leakage, published on 27 March 2018: Reporting guidance – Leakage1

	Calculated performance level to compare against PCLs	Percentage	This measure is the percentage reduction of three year average leakage in megalitres per day (Ml/d) from the 2019-20 baseline. 2019/20 baseline total leakage is calculated as a three-year average of annual leakage values for 2017-18, 2018-19 and 2019- 20 and expressed in megalitres per day (Ml/d). Three-year average Leakage for 2020/21 reporting year is calculated from annual average leakage values for the reporting year (2021/22) and two preceding years (2019/20 and 2021/22) and expressed in Ml/d. It is reported for NWL's North East appointed region only where it supplies water treated water to its customers, i.e. not its Essex & Suffolk region. Percentage reduction (for the report year) = ((2019/20 baseline – Three-year average Leakage (for the report year)/ 2019/20 baseline)) * 100 Where this calculation results in a positive value, it corresponds to an increase in leakage (Ml/d) compared to the baseline . Where this calculation results in a negative value it corresponds to a decrease in leakage (Ml/d) compared to the baseline Annual average leakage measures the volume of water that is lost across the water distribution network when delivering it from water treatment works to customer properties and is defined as the sum of distribution system leakage, including customer supply pipe leakage, plus service reservoir losses and trunk mains leakage measured in megalitres per day (Ml/d). It does not include internal plumbing losses (leaks that occur on the customer side of their stop tap). Distribution system leakage is calculated by establishing the baseline leakage through minimum night flows. Minimum night flows are measured at the District Meter Area ('DMA') level as a minimum flow during the fixed hour period (3am to 4am) when consumption is expected to be at its lowest, and therefore any residual flow after Legitimate Night Use ('LNU') is assumed to be leakage. Minimum Night Flow Leakage is calculated as follows: DMA night flow – (LNU x Hour to Day Factor) ▪ DMA Night flow is recorded during the fixed period of 3-4 am and measured using DMA "in" and "out" flow meters . ▪ LNU is an average allowance per property based on per capita consumption data and calculated for different property types (measured, unmeasured, household and non-household). The LNU rate is multiplied by the number of properties of the corresponding type within each DMA to derive a litres per hour value to deduct from night flow. ▪ The Hour to Day Factor is applied to account for reduced flow as a result of reducing water pressure within DMAs during night time. The pressure is reduced to protect the distribution area from bursts as a result of lower demand during the night. It is calculated as average daily pressure divided by night pressure and multiplied by 24 hours. Night pressure is calculated as average for the period of 3am to 4am; day pressure - average for the whole 24- hour period. Customer supply pipe losses are defined as leakage from customers' pipes between the highway boundary and the customer's stop tap. To estimate, NWL have analysed reported leaks for different property types (measured, unmeasured, household and non-household), and monitored a sample of properties to calculate the average supply pipe leakage, which is multiplied by the number of properties of each type to determine total supply pipe leakage. Trunk mains are defined as the length of mains between from the start of the distribution system and the flow monitoring zones. Transfer mains leakage is estimated based on the length of main, multiplied by the assessed leakage rate per kilometre of main. Service reservoir losses have been estimated by measuring the change in depth of reservoir levels for a sample period over a period of time to calculate the volume of water lost over that period. Annual average leakage is reported as a post-Maximum Likelihood Estimation (MLE) weighted average Ml/day over the year. The MLE technique is used to distribute the volume of any unaccounted-for water in the water balance (distribution input compared to water consumption + leakage) calculation. Unaccounted for water occurs when the distribution input and the sum of the components of the water balance do not reconcile. To reconcile the water balance, the MLE method is used to distribute the unaccounted-for water according to the uncertainty in the components of the water balance through the use of confidence intervals. The total level of leakage is defined in the final reporting guidance for PR19 – Leakage, published on 27 March 2018: Reporting guidance – Leakage1

3F2.5	Leakage	Performance level – actual (2021-22)	M/d	This measure is annual average leakage and expressed in megalitres per day (Ml/d). It is reported for NWL's Essex & Suffolk appointed region only where it supplies water treated water to its customers, i.e. not its North East region. Annual average leakage measures the volume of water that is lost across the water distribution network when delivering it from water treatment works to customer properties and is defined as the sum of distribution system leakage, including customer supply pipe leakage, plus service reservoir losses and trunk mains leakage measured in megalitres per day (Ml/d). It does not include internal plumbing losses (leaks that occur on the customer side of their stop tap). Distribution system leakage is calculated by establishing the baseline leakage through minimum night flows. Minimum night flows are measured at the District Meter Area ('DMA') level as a minimum flow during the fixed hour period (3am to 4am) when consumption is expected to be at its lowest, and therefore any residual flow after Legitimate Night Use ('LNU') is assumed to be leakage. Minimum Night Flow Leakage is calculated as follows: DMA night flow – (LNU x Hour to Day Factor) ▪ DMA Night flow is recorded during the fixed period of 3-4 am and measured using DMA "in" and "out" flow meters . ▪ LNU is an average allowance per property based on per capita consumption data and calculated for different property types (measured, unmeasured, household and non-household). The LNU rate is multiplied by the number of properties of the corresponding type within each DMA to derive a litres per hour value to deduct from night flow. ▪ The Hour to Day Factor is applied to account for reduced flow as a result of reducing water pressure within DMAs during night time. The pressure is reduced to protect the distribution area from bursts as a result of lower demand during the night. It is calculated as average daily pressure divided by night pressure and multiplied by 24 hours. Night pressure is calculated as average for the period of 3am to 4am; day pressure - average for the whole 24- hour period. Customer supply pipe losses are defined as leakage from customers' pipes between the highway boundary and the customer's stop tap. To estimate, NWL have analysed reported leaks for different property types (measured, unmeasured, household and non-household), and monitored a sample of properties to calculate the average supply pipe leakage, which is multiplied by the number of properties of each type to determine total supply pipe leakage. Trunk mains are defined as the length of mains from the start of the distribution system and the flow monitoring zones. Transfer mains leakage is estimated based on the length of main, multiplied by the assessed leakage rate per kilometre of main. Service reservoir losses have been estimated by measuring the change in depth of reservoir levels for a sample period over a period of time to calculate the volume of water lost over that period. Annual average leakage is reported as a post-Maximum Likelihood Estimation (MLE) weighted average Ml/day over the year. The MLE technique is used to distribute the volume of any unaccounted-for water in the water balance (distribution input compared to water consumption + leakage) calculation. Unaccounted for water occurs when the distribution input and the sum of the components of the water balance do not reconcile. To reconcile the water balance, the MLE method is used to distribute the unaccounted-for water according to the uncertainty in the components of the water balance through the use of confidence intervals. The total level of leakage is defined in the final reporting guidance for PR19 – Leakage, published on 27 March 2018: Reporting guidance – Leakage1

		Calculated performance level to compare against PCLs	%	This measure is the percentage reduction of three year average leakage in megalitres per day (Ml/d) from the 2019-20 baseline. 2019/20 baseline total leakage is calculated as a three-year average of annual leakage values for 2017-18, 2018-19 and 2019- 20 and expressed in megalitres per day (Ml/d). Three-year average Leakage for 2020/21 reporting year is calculated from annual average leakage values for the reporting year (2021/22) and two preceding years (2019/20 and 2020/21) and expressed in Ml/d. It is reported for NWL's Essex & Suffolk appointed region only where it supplies water treated water to its customers, i.e. not its North East region. Percentage reduction (for the report year) = ((2019/20 baseline – Three-year average Leakage (for the report year)/ 2019/20 baseline)) * 100 Where this calculation results in a positive value, it corresponds to an increase in leakage (Ml/d) compared to the baseline. Where this calculation results in a negative value it corresponds to a decrease in leakage (Ml/d) compared to the baseline. Annual average leakage measures the volume of water that is lost across the water distribution network when delivering it from water treatment works to customer properties and is defined as the sum of distribution system leakage, including customer supply pipe leakage, plus service reservoir losses and trunk mains leakage measured in megalitres per day (Ml/d). It does not include internal plumbing losses (leaks that occur on the customer side of their stop tap). Distribution system leakage is calculated by establishing the baseline leakage through minimum night flows. Minimum night flows are measured at the District Meter Area ('DMA') level as a minimum flow during the fixed hour period (3am to 4am) when consumption is expected to be at its lowest, and therefore any residual flow after Legitimate Night Use ('LNU') is assumed to be leakage. Minimum Night Flow Leakage is calculated as follows: DMA night flow – (LNU x Hour to Day Factor) ▪ DMA Night flow is recorded during the fixed period of 3-4 am and measured using DMA "in" and "out" flow meters . ▪ LNU is an average allowance per property based on per capita consumption data and calculated for different property types (measured, unmeasured, household and non-household). The LNU rate is multiplied by the number of properties of the corresponding type within each DMA to derive a litres per hour value to deduct from night flow. ▪ The Hour to Day Factor is applied to account for reduced flow as a result of reducing water pressure within DMAs during night time. The pressure is reduced to protect the distribution area from bursts as a result of lower demand during the night. It is calculated as average daily pressure divided by night pressure and multiplied by 24 hours. Night pressure is calculated as average for the period of 3am to 4am; day pressure - average for the whole 24- hour period. Customer supply pipe losses are defined as leakage from customers' pipes between the highway boundary and the customer's stop tap. To estimate, NWL have analysed reported leaks for different property types (measured, unmeasured, household and non-household), and monitored a sample of properties to calculate the average supply pipe leakage, which is multiplied by the number of properties of each type to determine total supply pipe leakage. Trunk mains are defined as the length of mains between from the start of the distribution system and the flow monitoring zones. Transfer mains leakage is estimated based on the length of main, multiplied by the assessed leakage rate per kilometre of main. Service reservoir losses have been estimated by measuring the change in depth of reservoir levels for a sample period over a period of time to calculate the volume of water lost over that period. Annual average leakage is reported as a post-Maximum Likelihood Estimation (MLE) weighted average Ml/day over the year. The MLE technique is used to distribute the volume of any unaccounted-for water in the water balance (distribution input compared to water consumption + leakage) calculation. Unaccounted for water occurs when the distribution input and the sum of the components of the water balance do not reconcile. To reconcile the water balance, the MLE method is used to distribute the unaccounted-for water according to the uncertainty in the components of the water balance through the use of confidence intervals. The total level of leakage is defined in the final reporting guidance for PR19 – Leakage, published on 27 March 2018: Reporting guidance – Leakage1
3F.8	Unplanned outage	Current company level peak week production capacity (PWPC)	Ml/d	Peak week production capacity (PWPC) is the maximum output that can be possibly achieved by an individual Water Treatment Works (WTW). For an individual site it is calculated as the highest recorded 7 day rolling average Distribution Input obtained from the site in the past 5 years. Further detail as to what constitutes PWPC, it is defined in the following guidance: https://www.ofwat.gov.uk/wp-content/uploads/2018/03/20190327-6.-Unplanned-outagefinal-reporting-guidance.pdf To calculate the company level PWPC, the individual PWPCs for every individual WTW across the company's treated water distribution network are added together.

		Reduction in company level PWPC	Ml/d	Reduction in PWPC is calculated for every unplanned outage that occurs at each Water Treatment Works separately and then summed over the reporting year to give the reduction in company level PWPC. Included within this measure are outages relating to unplanned causes such as asset failure only (unplanned outages). Outages relating to planned causes such as when assets are taken out of supply or made unavailable for supply to enable planned maintenance or capital works to be completed are excluded from the measure (planned outages). Only unplanned outage events which exceed 24 hours in duration should be included in this measure. Further detail as to what constitutes Planned Outages and Unplanned Outages, they are defined as per the following guidance: https://www.ofwat.gov.uk/wp-content/uploads/2018/03/20190327-6.-Unplanned-outagefinal-reporting-guidance.pdf For each unplanned outage the impact of the outage is recorded as the reduction in peak week production capacity. For outages resulting in the total loss of water production from the site then the impact of the outage is recorded as the total peak week production capacity for the site, whereas for others that lead to only a reduction in PWPC then the difference between PWPC and the attained production capacity should be reported as the impact of the outage. An individual unplanned outage is calculated using the following calculation: (Reduction in PWPC*Duration in days)/365. Further exclusions apply whereby if these are the reason for the outage then the impact of any outage as a result of these is not included in the reporting of this measure: - Excluded sites: Sites not in service as per the annual production plan, sites used only in the case of an emergency or sites only required to be in service during a dry year. - Outages of 24 hours or less in duration. - Outages where we have proactively restricted abstraction or production from a given WTW because of variable raw water quality. - Outages caused by raw water quality outside of the normal operating band for a given works. - Outages caused or prolonged by extreme weather events
		Outage proportion of PWPC	%	The percentage reported is calculated using the following calculation: (Reduction in company level PWPC/ Current company level peak week production capacity (PWPC) *100 Refer to the criteria titled Reduction in company level PWPC and Current company level peak week production capacity (PWPC) for details of how these are calculated. -
3G.4	Pollution incidents	Standardising numerical value	Km	The total length of sewer mains for which the company is responsible is set by the EA in the following guidance document:Environment Agency water and sewerage company Environmental Performance Assessment (EPA) methodology (version 9) for 2021 to 202 Category 4 incidents are excluded from the measure. Note: NWL's wastewater network covers only its North East region, it does not cover its Essex & Suffolk region where it provides water services only, not wastewater services.
		Performance level- actual current reporting year	Number	The total number of pollution incidents (categories 1 to 3) for which the company is responsible (across its whole wastewater network) in the calendar year 1 January 2021 to 31 December 2021, emanating from a discharge or escape of a contaminant from a company sewerage asset affecting the water environment. This does not include incidents impacting on air or land. Incidents affecting amenity of the water environment, e.g. Bathing Waters, are included. This does not include pollution incidents from transferred/adopted private pumping stations or transferred/adopted private rising mains (transferred in 2016). Pollution incidents attributed to the clean water distribution system and water treatment works are not included in this total pollution incidents sewerage definition. The actual number of pollution incidents (categories 1 to 3) used to calculate this measure are those recorded on the Environment Agency's (EA) National Incident Recording System (NIRS) database. The pollution incidents can occur across the wastewater network including: sewage treatment works, foul sewers, combined sewer overflows, rising mains, pumping stations, storm tanks, and surface water outfalls and are included on the NIRS through self-reporting to the EA by NWL, the public reporting directly to the EA, or through EA identification. For all pollution incidents reported, the EA determines the category it is placed into depending on its severity. The categories are defined as follows: – Category 1 – Major, serious, persistent and/or extensive impact or effect on the environment, people and/or property; – Category 2 – Significant impact or effect on the environment, people and/or property; – Category 3 – Minor or minimal impact or effect on the environment, people and/or property Further information how the categories are defined and determined can be found in the following EA guidance: the Common Incident Classification Scheme (CICS) | Ofwat

		Calculated performance level	%	This measure is the total number of pollution incidents (categories 1 to 3) per 10,000km of sewer length for which the company is responsible (across its whole wastewater network) in the calendar year 1 January 2021 to 31 December 2021, emanating from a discharge or escape of a contaminant from a company sewerage asset affecting the water environment. This does not include incidents impacting on air or land. Incidents affecting amenity of the water environment, e.g. Bathing Waters, are included. This does not include pollution incidents from transferred/adopted private pumping stations or transferred/adopted private rising mains (transferred in 2016). Pollution incidents attributed to the clean water distribution system and water treatment works are not included in this total pollution incidents sewerage definition. The actual number of pollution incidents (categories 1 to 3) used to calculate this measure are those recorded on the Environment Agency's (EA) National Incident Recording System (NIRS) database. The pollution incidents can occur across the wastewater network including: sewage treatment works, foul sewers, combined sewer overflows, rising mains, pumping stations, storm tanks, and surface water outfalls and are included on the NIRS through self-reporting to the EA by NWL, the public reporting directly to the EA, or through EA identification. For all pollution incidents reported, the EA determines the category it is placed into depending on its severity. The categories are defined as follows: – Category 1 – Major, serious, persistent and/or extensive impact or effect on the environment, people and/or property; – Category 2 – Significant impact or effect on the environment, people and/or property; – Category 3 – Minor or minimal impact or effect on the environment, people and/or property Further information how the categories are defined and determined can be found in the following EA guidance: the Common Incident Classification Scheme (CICS) | Ofwat The total length of sewer mains for which the company is responsible is set by the EA in the following guidance document: Environment Agency water and sewerage company Environmental Performance Assessment (EPA) methodology (version 9) for 2021 to 2023 Category 4 incidents are excluded from the measure. Note: NWL's wastewater network covers only its North East region, it does not cover its Essex & Suffolk region where it provides water services only, not wastewater services. The percentage reported is consistent with that reported for 3B.2.
3I.1	Planned outage	Current company level peak week production capacity (PWPC)	Ml/d	Peak week production capacity (PWPC) is the maximum output that can be possibly achieved by an individual Water Treatment Works (WTW). For an individual site it is calculated as the highest recorded 7 day rolling average Distribution Input obtained from the site in the past 5 years. Further detail as to what constitutes PWPC, it is defined in the following guidance: https://www.ofwat.gov.uk/wp-content/uploads/2018/03/20190327-6.-Unplanned-outagefinal-reporting-guidance.pdf To calculate the company level PWPC, the individual PWPCs for every individual WTW across the company's treated water distribution network are added together.
		Reduction in company level PWPC	Ml/d	Reduction in PWPC is calculated for every planned outage that occurs at each Water Treatment Works separately and then summed over the reporting year to give the reduction in company level PWPC. Included within this measure are outages relating to planned causes such as planned maintenance or capital works. Outages relating to unplanned reasons, e.g. asset failures, are excluded from the measure (unplanned outages). Only planned outage events which exceed 24 hours in duration should be included in this measure. Further detail as to what constitutes Planned Outages and Unplanned Outages, they are defined as per the following guidance: https://www.ofwat.gov.uk/wp-content/uploads/2018/03/20190327-6.-Unplanned-outagefinal-reporting-guidance.pdf For each planned outage the impact of the outage is recorded as the reduction in peak week production capacity. For outages resulting in the total loss of water production from the site then the impact of the outage is recorded as the total peak week production capacity for the site, whereas for others that lead to only a reduction in PWPC then the difference between PWPC and the attained production capacity should be reported as the impact of the outage. An individual planned outage is calculated using the following calculation: (Reduction in PWPC*Duration in days)/365. Further exclusions apply whereby if these are the reason for the outage then the impact of any outage as a result of these is not included in the reporting of this measure: - Excluded sites: Sites not in service as per the annual production plan, sites used only in the case of an emergency or sites only required to be in service during a dry year. - Outages of 24 hours or less in duration. - Outages where we have proactively restricted abstraction or production from a given WTW because of variable raw water quality. - Outages caused by raw water quality outside of the normal operating band for a given works. - Outages caused or prolonged by extreme weather events
		Outage proportion of PWPC	%	The % reported is calculated using the following calculation: (Reduction in company level PWPC/ Current company level peak week production capacity (PWPC) *100 Refer to the criteria titled 3F8 Unplanned outage for details of how these are calculated. -

3I.2	Risk of severe restrictions in drought	Deployable output	Ml/d	The maximum volume of water that NWL can abstract and treat, reported in megalitres per day. The volume of water is constrained by various factors including: the water available to abstract from a source; the abstraction licence (maximum volume allowed to be abstracted as set by the Environment Agency) of the source; the capacity of the pumps to abstract water from the source; and the capacity of the treatment works to treat the water for distribution across the company's water distribution network. The data and assumptions used to calculate the above are consistent with those reported in the company's published Water Resources Management Plans 2019 (WRMPs19) linked: Current WRMP (2020-2025); which at the time of publication were calculated by following the linked guidance: Drought resilience metric - Risk of severe restrictions in a drought | Ofwat so NWL has reported the same deployable output for each of its water resource zones as it did in its published WRMPs19.
		Outage allowance	Ml/d	An allowance for the volume of Deployable Output, measured in megalitres per day, that cannot be attained due to assets within the company's raw water network not operating at maximum capacity when they are required due to operational issues. The data and assumptions used to calculate the above are consistent with those reported in the company's published Water Resources Management Plans 2019 (WRMPs19) linked: Current WRMP (2020-2025); which at the time of publication were calculated by following the linked guidance: Drought resilience metric - Risk of severe restrictions in a drought | Ofwat so NWL has reported the same outage allowance for each of its water resource zones as it did in its published WRMPs19.
		Dry year demand	Ml/d	The volume of water, measured in megalitres per day, that is expected to be used by the population that the company serves with treated water across its network during a 1-in-200 year drought scenario. The data and assumptions used to calculate the above are consistent with those reported in the company's published Water Resources Management Plans 2019 (WRMPs19) linked: Current WRMP (2020-2025); which at the time of publication were calculated by following the linked guidance: Drought resilience metric - Risk of severe restrictions in a drought | Ofwat so NWL has reported the same dry year demand for each of its water resource zones as it did in its published WRMPs19.
		Target headroom	Ml/d	A volume of water, measured in megalitres per day, set by the company that is above the dry year demand during a 1-in-200 year drought scenario, to account for uncertainty in the calculation of demand in such a scenario. The data and assumptions used to calculate the above are consistent with those reported in the company's published Water Resources Management Plans 2019 (WRMPs19) linked: Current WRMP (2020-2025); which at the time of publication were calculated by following the linked guidance: Drought resilience metric - Risk of severe restrictions in a drought | Ofwat so NWL has reported the same target headroom for each of its water resource zones as it did in its published WRMPs19.
		Total population supplied	Ml/d	The total number of people that the company provides treated water to across its treated water distribution network. The data and assumptions used to calculate the above are consistent with those reported in the company's published Water Resources Management Plans 2019 (WRMPs19) linked: Current WRMP (2020-2025); which at the time of publication were calculated by following the linked guidance: Drought resilience metric - Risk of severe restrictions in a drought | Ofwat so NWL has reported the same total population supplied for each of its water resource zones as it did in its published WRMPs19.

		Customers at risk	Ml/d	The overall measure is the percentage of the company's customer population 'at risk' of experiencing severe restrictions, i.e. standpipes or rota cuts as part of Emergency Drought Orders, if a 1-in-200 year drought was to occur. The population is considered to be 'at risk' if the supply-demand balance calculation in each water resource zone (as used for water resource planning) for the 1-in-200 year drought event results in a shortfall (deficit). This will occur when the theoretical deployable output minus outage allowance (available supply), minus exports, plus imports, is less than the dry year demand plus base year target headroom (demand plus uncertainty). It is calculated using the following formula: *At risk if, DO – OA – exports + imports < DD + TH, where:* – Deployable output (supply) = DO – Outage allowance (unavailable supply) = OA – Dry year demand = DD – Target headroom (uncertainty) = TH The percentage of customers at risk is calculated by dividing the total numbers of customers at risk, i.e. population of each water resource zone considered to be at risk, by the total number of population served by the company across all its water resource zones. The data and assumptions used to calculate the above are consistent with those reported in the company's published Water Resources Management Plans 2019 (WRMPs19) linked: Current WRMP (2020-2025); which at the time of publication were calculated by following the linked guidance: Drought resilience metric - Risk of severe restrictions in a drought | Ofwat Note: Within its WRMPs19, NWL reported that 0% of the population it serves is at risk of experiencing severe restrictions if a 1-in-200 year drought for the reporting year, so, as per the above guidance, it has reported 0% performance for this measure in the current reporting year. The percentage reported is consistent with that reported for 3E.1.
4R.1	Residential water only customers	Unmeasured	000's	Average (mean) number of billed unmeasured, i.e. do not have a meter measuring their water usage or do have a meter but still have an unmeasured service agreement, residential customers who NWL supply only water to, i.e. they do not also supply wastewater services, across its appointed region. This is calculated by determining the number of residential customers billed for unmeasured water only services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. Excluded from the reporting for this line are: void customers (customers connected to the sewerage system but do not receive a charge as there are no occupants); non-household (business) customers and customers that have a measured water supply, i.e. a meter records the volume of water used and is used to bill the property its use.
		Measured	000's	Average (mean) number of billed measured, i.e. a meter records the volume of water used and is used to bill the property for its use, residential customers who NWL supply only water to, i.e. they do not also supply wastewater services, across its appointed region. This is calculated by determining the number of residential customers billed for measured water only services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. Excluded from the reporting for this line are: void customers (customers connected to the sewerage system but do not receive a charge as there are no occupants); non-household (business) customers and customers that have an unmeasured water supply, i.e. do not have a meter measuring their water usage.
		Total	000's	Average (mean) number of billed measured i.e., a meter records the volume of water used and is used to bill the property its use, and unmeasured i.e. do not have a meter measuring their water usage or do have a meter but still have an unmeasured service agreement, residential customers who NWL supply only water to, i.e. they do not also supply wastewater services, across its appointed region. This is calculated by determining the number of residential customers billed for unmeasured and measured water only services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. Excluded from the reporting for this line are: void customers (customers connected to the sewerage system but do not receive a charge as there are no occupants) and non-household (business) customers.

		Voids	000's	Average (mean) number of void residential properties which NWL supply only water to, i.e. they do not also supply wastewater services, across its appointed region. This includes both properties that would, if occupied, be classified as measured i.e., a meter records the volume of water used and is used to bill the property its use, and unmeasured i.e. do not have a meter measuring their water usage or do have a meter but still have an unmeasured service agreement. This is calculated by determining the number of residential unoccupied properties, who if billed would have water only services, in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. A void property is defined as one that does not receive a charge for its services because it is unoccupied. *Note: for the purposes of the definition of "void" above, a property that is occupied but not charged for the service(s) it receives is considered void, unless it has been deemed uneconomical to bill, meaning: the incremental cost of sending a bill and the normal incremental cost of processing a payment made promptly in response to the bill is likely to be greater than the bill itself year.*
4R.2	Residential wastewater only customers	Unmeasured	000's	Average (mean) number of billed unmeasured, i.e. do not have a meter measuring their water usage or do have a meter but still have an unmeasured service agreement, residential customers who NWL supply only wastewater services to, i.e. they do not also supply water services, across its appointed region. This is calculated by determining the number of residential customers billed for unmeasured wastewater only services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. Excluded from the reporting for this line are: void customers (customers connected to the sewerage system but do not receive a charge as there are no occupants); non-household (business) customers and customers that have a measured wastewater supply, i.e. a meter records the volume of water used and is used to bill the property its use.
		Measured	000's	Average (mean) number of billed measured, i.e. a meter records the volume of water used and is used to bill the property its use, residential customers who NWL supply only wastewater services to, i.e. they do not also supply water services, across its appointed region. This is calculated by determining the number of residential customers billed for measured wastewater only services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. Excluded from the reporting for this line are: void customers (customers connected to the sewerage system but do not receive a charge as there are no occupants); non-household (business) customers and customers that have an unmeasured wastewater supply, i.e. do not have a meter measuring their water usage.
		Total	000's	Average (mean) number of billed measured i.e., a meter records the volume of water used and is used to bill the property its use, and unmeasured i.e. do not have a meter measuring their water usage or do have a meter but still have an unmeasured service agreement, residential customers who NWL supply only wastewater services to, i.e. they do not also supply water services, across its appointed region. This is calculated by determining the number of residential customers billed for unmeasured and measured wastewater only services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. Excluded from the reporting for this line are: void customers (customers connected to the sewerage system but do not receive a charge as there are no occupants) and non-household (business) customers.
		Voids	000's	Average (mean) number of void residential properties which NWL supply only wastewater services to, i.e. they do not also supply water services, across its appointed region. This includes both properties that would, if occupied, be classified as measured i.e., a meter records the volume of water used and is used to bill the property its use, and unmeasured i.e. do not have a meter measuring their water usage or do have a meter but still have an unmeasured service agreement. This is calculated by determining the number of residential unoccupied properties, who if billed would have wastewater only services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. A void property is defined as one that does not receive a charge for its services because it is unoccupied. *Note: for the purposes of the definition of "void" above, a property that is occupied but not charged for the service(s) it receives is considered void, unless it has been deemed uneconomical to bill, meaning: the incremental cost of sending a bill and the normal incremental cost of processing a payment made promptly in response to the bill is likely to be greater than the bill itself year.*

4R.3	Residential water and wastewater customers	Unmeasured	000's	Average (mean) number of billed unmeasured, i.e. do not have a meter measuring their water usage or do have a meter but still have an unmeasured service agreement, residential customers who NWL supply both water and wastewater services to, i.e. not solely either water or wastewater services, across its appointed region. This is calculated by determining the number of residential customers billed for unmeasured dual water and wastewater services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. Excluded from the reporting for this line are: void customers (customers connected to the sewerage system but do not receive a charge as there are no occupants); non-household (business) customers and customers that have a measured water and wastewater supply, i.e. a meter records the volume of water used and is used to bill the property its use.
		Measured	000's	Average (mean) number of billed measured, i.e. a meter records the volume of water used and is used to bill the property its use, residential customers who NWL supply both water and wastewater services to, i.e. not solely either water or wastewater services, across its appointed region. This is calculated by determining the number of residential customers billed for measured dual water and wastewater services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. Excluded from the reporting for this line are: void customers (customers connected to the sewerage system but do not receive a charge as there are no occupants); non-household (business) customers and customers that have an unmeasured water and wastewater supply, i.e. do not have a meter measuring their water usage.
		Total	000's	Average (mean) number of billed measured i.e., a meter records the volume of water used and is used to bill the property its use, and unmeasured i.e. do not have a meter measuring their water usage or do have a meter but still have an unmeasured service agreement, residential customers who NWL supply both water and wastewater services to, i.e. not solely either water or wastewater services, across its appointed region. This is calculated by determining the number of residential customers billed for unmeasured and measured dual water and wastewater services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. Excluded from the reporting for this line are: void customers (customers connected to the sewerage system but do not receive a charge as there are no occupants) and non-household (business) customers.
		Voids	000's	Average (mean) number of void residential properties who NWL supply both water and wastewater services to, i.e. not solely either water or wastewater services, across its appointed region. This includes both properties that would, if occupied, be classified as measured i.e., a meter records the volume of water used and is used to bill the property its use, and unmeasured i.e. do not have a meter measuring their water usage or do have a meter but still have an unmeasured service agreement. This is calculated by determining the number of residential unoccupied properties, who if billed would have water and wastewater services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. A void property is defined as one that does not receive a charge for its services because it is unoccupied. *Note: for the purposes of the definition of "void" above, a property that is occupied but not charged for the service(s) it receives is considered void, unless it has been deemed uneconomical to bill, meaning: the incremental cost of sending a bill and the normal incremental cost of processing a payment made promptly in response to the bill is likely to be greater than the bill itself year.*
4R.4	Total residential customers	Unmeasured	000's	Average (mean) number of billed unmeasured, i.e. do not have a meter measuring their water usage or do have a meter but still have an unmeasured service agreement, residential customers who NWL supply a service to, whether that is water only, wastewater only, water and wastewater services to across its appointed region. This is calculated by determining the number of residential customers billed for unmeasured services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. Excluded from the reporting for this line are: void customers (customers connected to the sewerage system but do not receive a charge as there are no occupants); non-household (business) customers; and customers that have a measured water and/or wastewater supply, i.e. a meter records the volume of water used and is used to bill the property its use.
		Measured	000's	Average (mean) number of billed measured, i.e. a meter records the volume of water used and is used to bill the property its use, residential customers who NWL supply a service to, whether that is water only, wastewater only, water and wastewater services to across its appointed region. This is calculated by determining the number of residential customers billed for measured services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. Excluded from the reporting for this line are: void customers (customers connected to the sewerage system but do not receive a charge as there are no occupants); non-household (business) customers; and customers that have a unmeasured water and/or wastewater supply, i.e. do not have a meter measuring their water usage.

		Total	000's	Average (mean) number of billed measured i.e., a meter records the volume of water used and is used to bill the property its use, and unmeasured i.e. do not have a meter measuring their water usage or do have a meter but still have an unmeasured service agreement, residential customers who NWL supply a service to, whether that is water only, wastewater only, water and wastewater services to across its appointed region. This is calculated by determining the number of residential customers billed for services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. Excluded from the reporting for this line are: void customers (customers connected to the sewerage system but do not receive a charge as there are no occupants) and non-household (business) customers.
		Voids	000's	Average (mean) number of void residential properties which NWL supply a service to, whether that is water only, wastewater only, water and wastewater services to across its appointed region. This includes both properties that would, if occupied, be classified as measured i.e., a meter records the volume of water used and is used to bill the property its use, and unmeasured i.e. do not have a meter measuring their water usage or do have a meter but still have an unmeasured service agreement. This is calculated by determining the number of residential unoccupied properties for all (water only, waste only and water and waste)services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. A void property is defined as one that does not receive a charge for its services because it is unoccupied. *Note: for the purposes of the definition of "void" above, a property that is occupied but not charged for the service(s) it receives is considered void, unless it has been deemed uneconomical to bill, meaning: the incremental cost of sending a bill and the normal incremental cost of processing a payment made promptly in response to the bill is likely to be greater than the bill itself year.*
4R.5	Business water only customers	Unmeasured	000's	Average (mean) number of billed unmeasured, i.e. do not have a meter measuring their water usage, business customers who NWL supply only water to, i.e. they do not also supply wastewater services, across its appointed region. This is calculated by determining the number of business customers billed for unmeasured water only services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. Excluded from the reporting for this line are: void customers (customers connected to the sewerage system but do not receive a charge as there are no occupants); household (residential) customers and customers that have a measured water supply, i.e. a meter records the volume of water used and is used to bill the property its use.
		Measured	000's	Average (mean) number of billed measured, i.e. a meter records the volume of water used and is used to bill the property its use, business customers who NWL supply only water to, i.e. they do not also supply wastewater services, across its appointed region. This is calculated by determining the number of business customers billed for measured water only services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. Excluded from the reporting for this line are: void customers (customers connected to the sewerage system but do not receive a charge as there are no occupants); household (residential) customers and customers that have an unmeasured water supply, i.e. do not have a meter measuring their water usage.
		Total	000's	Average (mean) number of billed measured i.e., a meter records the volume of water used and is used to bill the property its use, and unmeasured i.e. do not have a meter measuring their water usage, business customers who NWL supply only water to, i.e. they do not also supply wastewater services, across its appointed region. This is calculated by determining the number of business customers billed for unmeasured and measured water only services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. Excluded from the reporting for this line are: void customers (customers connected to the sewerage system but do not receive a charge as there are no occupants) and household (residential) customers.
		Voids	000's	Average (mean) number of void business properties which NWL supply only water to, i.e. they do not also supply wastewater services, across its appointed region. This includes both properties that would, if occupied, be classified as measured i.e., a meter records the volume of water used and is used to bill the property its use, and unmeasured i.e. do not have a meter measuring their water usage. This is calculated by determining the number of unoccupied business properties which, if billed, would have water only services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. A void property is defined as one that does not receive a charge for its services because it is unoccupied. *Note: for the purposes of the definition of "void" above, a property that is occupied but not charged for the service(s) it receives is considered void, unless it has been deemed uneconomical to bill, meaning: the incremental cost of sending a bill and the normal incremental cost of processing a payment made promptly in response to the bill is likely to be greater than the bill itself year.*

4R.6	Business wastewater only customers	Unmeasured	000's	Average (mean) number of billed unmeasured, i.e. do not have a meter measuring their water usage, business customers who NWL supply only wastewater services to, i.e. they do not also supply water services, across its appointed region. This is calculated by determining the number of business customers billed for unmeasured wastewater only services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. Excluded from the reporting for this line are: void customers (customers connected to the sewerage system but do not receive a charge as there are no occupants); household (residential) customers and customers that have a measured wastewater supply, i.e. a meter records the volume of water used and is used to bill the property its use.
		Measured	000's	Average (mean) number of billed measured, i.e. a meter records the volume of water used and is used to bill the property its use, business customers who NWL supply only wastewater services to, i.e. they do not also supply water services, across its appointed region. This is calculated by determining the number of business customers billed for measured wastewater only services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. Excluded from the reporting for this line are: void customers (customers connected to the sewerage system but do not receive a charge as there are no occupants); household (residential) customers and customers that have an unmeasured wastewater supply, i.e. do not have a meter measuring their water usage.
		Total	000's	Average (mean) number of billed measured i.e., a meter records the volume of water used and is used to bill the property its use, and unmeasured i.e. do not have a meter measuring their water usage, business customers who NWL supply only wastewater services to, i.e. they do not also supply water services, across its appointed region. This is calculated by determining the number of business customers billed for unmeasured and measured wastewater only services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. Excluded from the reporting for this line are: void customers (customers connected to the sewerage system but do not receive a charge as there are no occupants) and household (residential) customers.
		Voids	000's	Average (mean) number of void business properties which NWL supply only wastewater services to, i.e. they do not also supply water services, across its appointed region. This includes both properties that would, if occupied, be classified as measured i.e., a meter records the volume of water used and is used to bill the property its use, and unmeasured i.e. do not have a meter measuring their water usage. This is calculated by determining the number of unoccupied business properties, which if billed would have wastewater only services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. A void property is defined as one that does not receive a charge for its services because it is unoccupied. *Note: for the purposes of the definition of "void" above, a property that is occupied but not charged for the service(s) it receives is considered void, unless it has been deemed uneconomical to bill, meaning: the incremental cost of sending a bill and the normal incremental cost of processing a payment made promptly in response to the bill is likely to be greater than the bill itself year.*
4R.7	Business water & wastewater customers	Unmeasured	000's	Average (mean) number of billed unmeasured, i.e. do not have a meter measuring their water usage, business customers who NWL supply both water and wastewater services to, i.e. not solely either water or wastewater services, across its appointed region. This is calculated by determining the number of business customers billed for unmeasured dual water and wastewater services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. Excluded from the reporting for this line are: void customers (customers connected to the sewerage system but do not receive a charge as there are no occupants); household (residential) customers and customers that have a measured water and wastewater supply, i.e. a meter records the volume of water used and is used to bill the property its use.
		Measured	000's	Average (mean) number of billed measured, i.e. a meter records the volume of water used and is used to bill the property its use, business customers who NWL supply both water and wastewater services to, i.e. not solely either water or wastewater services, across its appointed region. This is calculated by determining the number of business customers billed for measured dual water and wastewater services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. Excluded from the reporting for this line are: void customers (customers connected to the sewerage system but do not receive a charge as there are no occupants); household (residential) customers and customers that have an unmeasured water and wastewater supply, i.e. do not have a meter measuring their water usage.

		Total	000's	Average (mean) number of billed measured i.e., a meter records the volume of water used and is used to bill the property its use, and unmeasured i.e. do not have a meter measuring their water usage, business customers who NWL supply both water and wastewater services to, i.e. not solely either water or wastewater services, across its appointed region. This is calculated by determining the number of business customers billed for unmeasured and measured dual water and wastewater services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. Excluded from the reporting for this line are: void customers (customers connected to the sewerage system but do not receive a charge as there are no occupants) and household (residential) customers.
		Voids	000's	Average (mean) number of void business properties which NWL supply both water and wastewater services to, i.e. not solely either water or wastewater services, across its appointed region. This includes both properties that would, if occupied, be classified as measured i.e., a meter records the volume of water used and is used to bill the property its use, and unmeasured i.e. do not have a meter measuring their water usage. This is calculated by determining the number of unoccupied business properties, which if billed would have water and wastewater services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. A void property is defined as one that does not receive a charge for its services because it is unoccupied. *Note: for the purposes of the definition of "void" above, a property that is occupied but not charged for the service(s) it receives is considered void, unless it has been deemed uneconomical to bill, meaning: the incremental cost of sending a bill and the normal incremental cost of processing a payment made promptly in response to the bill is likely to be greater than the bill itself year.*
4R.8	Total business customers	Unmeasured	000's	Average (mean) number of billed unmeasured, i.e. do not have a meter measuring their water usage, business customers who NWL supply a service to, whether that is water only, wastewater only, water and wastewater services to across its appointed region. This is calculated by determining the number of business customers billed for unmeasured services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. Excluded from the reporting for this line are: void customers (customers connected to the sewerage system but do not receive a charge as there are no occupants); household (residential) customers; and customers that have a measured water and/or wastewater supply, i.e. a meter records the volume of water used and is used to bill the property its use.
		Measured	000's	Average (mean) number of billed measured, i.e. a meter records the volume of water used and is used to bill the property its use, business customers who NWL supply a service to, whether that is water only, wastewater only, water and wastewater services to across its appointed region. This is calculated by determining the number of business customers billed for measured services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. Excluded from the reporting for this line are: void customers (customers connected to the sewerage system but do not receive a charge as there are no occupants); household (residential) customers; and customers that have a unmeasured water and/or wastewater supply, i.e. do not have a meter measuring their water usage.
		Total	000's	Average (mean) number of billed measured i.e., a meter records the volume of water used and is used to bill the property its use, and unmeasured i.e. do not have a meter measuring their water usage, business customers who NWL supply a service to, whether that is water only, wastewater only, water and wastewater services to across its appointed region. This is calculated by determining the number of business customers billed for services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. Excluded from the reporting for this line are: void customers (customers connected to the sewerage system but do not receive a charge as there are no occupants) and household (residential) customers.

		Voids	000's	Average (mean) number of void business properties which NWL supply a service to, whether that is water only, wastewater only, water and wastewater services to across its appointed region. This includes both properties that would, if occupied, be classified as measured i.e., a meter records the volume of water used and is used to bill the property its use, and unmeasured i.e. do not have a meter measuring their water usage. This is calculated by determining the number of unoccupied business properties \ for all (water only, waste only and water and waste) services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. A void property is defined as one that does not receive a charge for its services because it is unoccupied. *Note: for the purposes of the definition of "void" above, a property that is occupied but not charged for the service(s) it receives is considered void, unless it has been deemed uneconomical to bill, meaning: the incremental cost of sending a bill and the normal incremental cost of processing a payment made promptly in response to the bill is likely to be greater than the bill itself year.*
4R.9	Total customers	Unmeasured	000's	Average (mean) number of billed unmeasured, i.e. do not have a meter measuring their water usage, business and residential customers who NWL supply a service to, whether that is water only, wastewater only, water and wastewater services to across its appointed region. This is calculated by determining the number of business and residential customers billed for unmeasured services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. Excluded from the reporting for this line are: void customers (customers connected to the sewerage system but do not receive a charge as there are no occupants); and customers that have a measured water and/or wastewater supply, i.e. a meter records the volume of water used and is used to bill the property its use.
		Measured	000's	Average (mean) number of billed measured, i.e. a meter records the volume of water used and is used to bill the property its use, business and residential customers who NWL supply a service to, whether that is water only, wastewater only, water and wastewater services to across its appointed region. This is calculated by determining the number of business and residential customers billed for measured services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. Excluded from the reporting for this line are: void customers (customers connected to the sewerage system but do not receive a charge as there are no occupants); and customers that have a unmeasured water and/or wastewater supply, i.e. do not have a meter measuring their water usage.
		Total	000's	Average (mean) number of billed measured i.e., a meter records the volume of water used and is used to bill the property its use, and unmeasured i.e. do not have a meter measuring their water usage, business and residential customers who NWL supply a service to, whether that is water only, wastewater only, water and wastewater services to across its appointed region. This is calculated by determining the number of business and residential customers billed for services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. Excluded from the reporting for this line are: void customers (customers connected to the sewerage system but do not receive a charge as there are no occupants).
		Voids	000's	Average (mean) number of void business and residential properties which NWL supply a service to, whether that is water only, wastewater only, water and wastewater services to across its appointed region. This includes both properties that would, if occupied, be classified as measured i.e., a meter records the volume of water used and is used to bill the property its use, and unmeasured i.e. do not have a meter measuring their water usage. This is calculated by determining the number of unoccupied business and residential properties for all (water only, waste only and water and waste) services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. A void property is defined as one that does not receive a charge for its services because it is unoccupied. *Note: for the purposes of the definition of "void" above, a property that is occupied but not charged for the service(s) it receives is considered void, unless it has been deemed uneconomical to bill, meaning: the incremental cost of sending a bill and the normal incremental cost of processing a payment made promptly in response to the bill is likely to be greater than the bill itself year.*

4R.10	Residential properties billed	Water Unmeasured	000's	Average (mean) number of billed unmeasured, i.e. do not have a meter measuring their water usage or do have a meter but still have an unmeasured service agreement, residential properties who NWL supply water to. For the avoidance of doubt, this includes both water only properties, and dual water and wastewater services properties. This is calculated by determining the number of residential properties billed for unmeasured water only and water and wastewater services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. Excluded from the reporting for this line are: void properties (properties connected to the treated water system but do not receive a charge as there are no occupants); non-household (business) properties and properties that have a measured water supply, i.e. a meter records the volume of water used and is used to bill the property its use. This line should be equivalent to the sum of unmeasured properties reported in lines 4R.1 and 4R.3.
		Water Measured	000's	Average (mean) number of billed measured, i.e. a meter records the volume of water used and is used to bill the property its use residential properties who NWL supply water to. For the avoidance of doubt, this includes both water only properties, and dual water and wastewater services properties. This is calculated by determining the number of residential properties billed for measured water only and water and wastewater services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. Excluded from the reporting for this line are: void properties (properties connected to the sewerage system but do not receive a charge as there are no occupants); non-household (business) properties and properties that have an unmeasured water supply, i.e. do not have a meter measuring their water usage. This line should be equivalent to the sum of measured properties reported in lines 4R.1 and 4R.3.
		Water Total	000's	Average (mean) number of billed measured i.e., a meter records the volume of water used and is used to bill the property its use, and unmeasured i.e. do not have a meter measuring their water usage, residential properties who NWL supply only water to. For the avoidance of doubt, this includes both water only properties, and dual water and wastewater services properties. This is calculated by determining the number of residential properties billed for unmeasured and measured water only and water and wastewater services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. Excluded from the reporting for this line are: void properties (properties connected to the sewerage system but do not receive a charge as there are no occupants) and non-household (business) properties. This line should be equivalent to the sum of total properties reported in lines 4R.1 and 4R.3.
		Wastewater Unmeasured	000's	Average (mean) number of billed unmeasured, i.e. do not have a meter measuring their water usage or do have a meter but still have an unmeasured service agreement, residential properties who NWL supply wastewater services to. For the avoidance of doubt, this includes both wastewater services only properties, and dual water and wastewater services properties. This is calculated by determining the number of residential properties billed for unmeasured waste only and water and wastewater services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13 so that reporting encompasses the position as at the start of the year and the end of the year. Excluded from the reporting for this line are: void properties (properties connected to the sewerage system but do not receive a charge as there are no occupants); non-household (business) properties and properties that have a measured wastewater supply, i.e. a meter records the volume of water used and is used to bill the property its use. This line should be equivalent to the sum of unmeasured properties reported in lines 4R.2 and 4R.3.

Wastewater measured	000's	Average (mean) number of billed measured, i.e. a meter records the volume of water used and is used to bill the property its use, residential properties who NWL supply wastewater services to. For the avoidance of doubt, this includes both wastewater services only properties, and dual water and wastewater services properties. This is calculated by determining the number of residential properties billed for measured waste only and water and wastewater services wastewater services in every month of the reporting year (1 April 2021 – 21 April 2022) and dividing by 13 so that reporting encompasses the position as at the start of the year and the end of the year. Excluded from the reporting for this line are: void properties (properties connected to the sewerage system but do not receive a charge as there are no occupants); non-household (business) properties and properties that have an unmeasured wastewater supply, i.e. do not have a meter measuring their water usage. This line is the sum of measured properties reported in lines 4R.2 and 4R.3.
Wastewater Total	000's	Average (mean) number of billed measured i.e., a meter records the volume of water used and is used to bill the property its use, and unmeasured i.e. do not have a meter measuring their water usage, residential properties who NWL supply wastewater services to. For the avoidance of doubt, this includes both wastewater services only properties, and dual water and wastewater services properties. This is calculated by determining the number of residential properties billed for unmeasured and measured waste only and water and wastewater services in every month of the reporting year (1 April 2021 – 21 April 2022) and dividing by 13 so that reporting encompasses the position as at the start of the year and the end of the year. Excluded from the reporting for this line are: void properties (properties connected to the sewerage system but do not receive a charge as there are no occupants) and non-household (business) properties. This line is the sum of total properties reported in lines 4R.2 and 4R.3.

4R.11	Residential void properties	Water Total	000's	Average (mean) number of void residential properties who NWL supply water to. For the avoidance of doubt, this includes both water only properties, and dual water and wastewater services properties. This is calculated by determining the number of void residential properties billed for unmeasured and measured water only and water and waste services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. A void property is defined as one that does not receive a charge for its services because it is unoccupied. *Note: for the purposes of the definition of "void" above, a property that is occupied but not charged for the service(s) it receives is considered void, unless it has been deemed uneconomical to bill, meaning: the incremental cost of sending a bill and the normal incremental cost of processing a payment made promptly in response to the bill is likely to be greater than the bill itself year.* This line should be equivalent to the sum of void properties reported in lines 4R.1 and 4R.3.
		Wastewater Total	000's	Average (mean) number of void residential properties who NWL supply wastewater services to. For the avoidance of doubt, this includes both water only properties, and dual water and wastewater services properties. This is calculated by determining the number of void residential properties billed for unmeasured and measured waste only and water and waste services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. A void property is defined as one that does not receive a charge for its services because it is unoccupied. *Note: for the purposes of the definition of "void" above, a property that is occupied but not charged for the service(s) it receives is considered void, unless it has been deemed uneconomical to bill, meaning: the incremental cost of sending a bill and the normal incremental cost of processing a payment made promptly in response to the bill is likely to be greater than the bill itself year.* This line should be equivalent to the sum of void properties reported in lines 4R.2 and 4R.3.
4R.12	Total connected residential properties	Water Total	000's	Average (mean) number of billed measured i.e., a meter records the volume of water used and is used to bill the property its use, and unmeasured i.e. do not have a meter measuring their water usage, residential properties who NWL supply water services to. For the avoidance of doubt, this includes both water only properties, and dual water and wastewater services properties. This is calculated by determining the number of residential properties billed and void for unmeasured and measured water only and water and waste services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. Excluded from the reporting for this line are:) non-household (business) properties. This line should be equivalent to the sum of total water properties reported in lines 4R.10 and 4R.11.

		Wastewater Total	000's	Average (mean) number of billed measured i.e., a meter records the volume of water used and is used to bill the property its use, and unmeasured i.e. do not have a meter measuring their water usage, residential properties who NWL supply wastewater services to. For the avoidance of doubt, this includes both wastewater services only properties, and dual water and wastewater services properties. This is calculated by determining the number of residential properties billed and void for unmeasured and measured waste only and water and waste services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. Excluded from the reporting for this line are: non-household (business) properties. This line should be equivalent to the sum of total wastewater properties reported in lines 4R.10 and 4R.11.
4R.13	Business properties billed	Water Unmeasured	000's	Average (mean) number of billed unmeasured, i.e. do not have a meter measuring their water usage, business properties who NWL supply water to. For the avoidance of doubt, this includes both water only properties, and dual water and wastewater services properties. This is calculated by determining the number of business properties billed for unmeasured water only and water and waste services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. Excluded from the reporting for this line are: void properties (properties connected to the treated water system but do not receive a charge as there are no occupants); household (residential) properties and properties that have a measured water supply, i.e. a meter records the volume of water used and is used to bill the property its use. This line should be equivalent to the sum of unmeasured properties reported in lines 4R.5 and 4R.7.
		Water Measured	000's	Average (mean) number of billed measured, i.e. a meter records the volume of water used and is used to bill the property its use business properties who NWL supply water to. For the avoidance of doubt, this includes both water only properties, and dual water and wastewater services properties. This is calculated by determining the number of business properties billed for measured water only and water and waste services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. Excluded from the reporting for this line are: void properties (properties connected to the sewerage system but do not receive a charge as there are no occupants); household (residential) properties and properties that have an unmeasured water supply, i.e. do not have a meter measuring their water usage. This line should be equivalent to the sum of measured properties reported in lines 4R.5 and 4R.7.
		Water Total	000's	Average (mean) number of billed measured i.e., a meter records the volume of water used and is used to bill the property its use, and unmeasured i.e. do not have a meter measuring their water usage, business properties who NWL supply only water to. For the avoidance of doubt, this includes both water only properties, and dual water and wastewater services properties. This is calculated by determining the number of business properties billed for unmeasured and measured water only and water and waste services r in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. Excluded from the reporting for this line are: void properties (properties connected to the sewerage system but do not receive a charge as there are no occupants) and household (residential) properties. This line should be equivalent to the sum of total properties reported in lines 4R.5 and 4R.7.

		Wastewater Unmeasured	000's	Average (mean) number of billed unmeasured, i.e. do not have a meter measuring their water usage, business properties who NWL supply wastewater services to. For the avoidance of doubt, this includes both wastewater services only properties, and dual water and wastewater services properties. This is calculated by determining the number of business properties billed for unmeasured waste only and water and waste services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. Excluded from the reporting for this line are: void properties (properties connected to the sewerage system but do not receive a charge as there are no occupants); household (residential) properties and properties that have a measured wastewater supply, i.e. a meter records the volume of water used and is used to bill the property its use. This line should be equivalent to the sum of unmeasured properties reported in lines 4R.6 and 4R.7.
		Wastewater measured	000's	Average (mean) number of billed measured, i.e. a meter records the volume of water used and is used to bill the property its use, business properties who NWL supply wastewater services to. For the avoidance of doubt, this includes both wastewater services only properties, and dual water and wastewater services properties. This is calculated by determining the number of business properties billed for measured waste only and water and waste services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. Excluded from the reporting for this line are: void properties (properties connected to the sewerage system but do not receive a charge as there are no occupants); household (residential) properties and properties that have an unmeasured wastewater supply, i.e. do not have a meter measuring their water usage. This line should be equivalent to the sum of measured properties reported in lines 4R.6 and 4R.7.
		Wastewater Total	000's	Average (mean) number of billed measured i.e., a meter records the volume of water used and is used to bill the property its use, and unmeasured i.e. do not have a meter measuring their water usage, business properties who NWL supply wastewater services to. For the avoidance of doubt, this includes both wastewater services only properties, and dual water and wastewater services properties. This is calculated by determining the number of business properties billed for unmeasured and measured waste only and water and waste services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. Excluded from the reporting for this line are: void properties (properties connected to the sewerage system but do not receive a charge as there are no occupants) and household (residential) properties. This line should be equivalent to the sum of total properties reported in lines 4R.6 and 4R.7.
4R.14	Business void properties	Water Total	000's	Average (mean) number of void business properties who NWL supply water to. For the avoidance of doubt, this includes both water only properties, and dual water and wastewater services properties. This is calculated by determining the number of void business properties billed for unmeasured and measured water only and water and waste services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. A void property is defined as one that does not receive a charge for its services because it is unoccupied. *Note: for the purposes of the definition of "void" above, a property that is occupied but not charged for the service(s) it receives is considered void, unless it has been deemed uneconomical to bill, meaning: the incremental cost of sending a bill and the normal incremental cost of processing a payment made promptly in response to the bill is likely to be greater than the bill itself year.* This line should be equivalent to the sum of void properties reported in lines 4R.5 and 4R.7.

		Wastewater Total	000's	Average (mean) number of void business properties who NWL supply wastewater services to. For the avoidance of doubt, this includes both water only properties, and dual water and wastewater services properties. This is calculated by determining the number of void business properties billed for unmeasured and measured waste only and water and waste services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. A void property is defined as one that does not receive a charge for its services because it is unoccupied. *Note: for the purposes of the definition of "void" above, a property that is occupied but not charged for the service(s) it receives is considered void, unless it has been deemed uneconomical to bill, meaning: the incremental cost of sending a bill and the normal incremental cost of processing a payment made promptly in response to the bill is likely to be greater than the bill itself year.* This line should be equivalent to the sum of void properties reported in lines 4R.6 and 4R.7.
4R.15	Total connected business properties	Water Total	000's	Average (mean) number of billed measured i.e., a meter records the volume of water used and is used to bill the property its use, and unmeasured i.e. do not have a meter measuring their water usage, residential properties who NWL supply water services to. For the avoidance of doubt, this includes both water only properties, and dual water and wastewater services properties, and void properties (properties connected to the sewerage system but do not receive a charge as there are no occupants) This is calculated by determining the number of business properties billed for unmeasured and measured water only and water and waste services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. Excluded from the reporting for this line are household (residential) properties. This line should be equivalent to the sum of total water properties reported in lines 4R.13 and 4R.14.
		Wastewater Total	000's	Average (mean) number of billed measured i.e., a meter records the volume of water used and is used to bill the property its use, and unmeasured i.e. do not have a meter measuring their water usage, residential properties who NWL supply wastewater services to. For the avoidance of doubt, this includes both wastewater services only properties, and dual water and wastewater services properties, and void properties (properties connected to the sewerage system but do not receive a charge as there are no occupants) This is calculated by determining the number of business l properties billed for unmeasured and measured waste only and water and waste services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. Excluded from the reporting for this line are household (residential) properties. This line should be equivalent to the sum of total wastewater properties reported in lines 4R.13 and 4R.14.
4R.16	Total connected properties	Water Total	000's	Average (mean) number of billed measured i.e., a meter records the volume of water used and is used to bill the property its use, and unmeasured i.e. do not have a meter measuring their water usage, residential and business properties who NWL supply water services to. For the avoidance of doubt, this includes both water only properties, and dual water and wastewater services properties, and void properties (properties connected to the sewerage system but do not receive a charge as there are no occupants). This is calculated by determining the number of residential and business properties billed for unmeasured and measured water only and water and waste services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. This line should be equivalent to the sum of total water properties reported in lines 4R.12 and 4R.15.

		Wastewater Total	000's	Average (mean) number of billed measured i.e., a meter records the volume of water used and is used to bill the property its use, and unmeasured i.e. do not have a meter measuring their water usage, residential and business properties who NWL supply wastewater services to. For the avoidance of doubt, this includes both wastewater only properties, and dual water and wastewater services properties, and void properties (properties connected to the sewerage system but do not receive a charge as there are no occupants). This is calculated by determining the number of residential and business properties billed for unmeasured and measured waste only and water and waste services in every month of the reporting year (1 April x-1 – 21 April x) and dividing by 13. This line should be equivalent to the sum of total wastewater properties reported in lines 4R.12 and 4R.15.
4R.17	Total new residential properties connected in year	Water Unmeasured No meter	000's	Total number of new residential connections to the company's area of supply for water distribution during the report that are unmeasured i.e. do not have a meter measuring their water usage. This is the number of new residential properties connected within the reporting year that were previously not connected for water supply. This excludes separation of common services (where one supply has been broken into multiple supplies), or other reconnections (reconnecting a supply to the network that was previously connected but had been disconnected for a period of time). Whether the property associated with the new connection is habitable by the year end or not is not considered when reporting this measure. They key driver for inclusion is whether a connection has been made to the company's treated water distribution network during the year or not. This measure includes only new unmeasured connections, i.e. do not have a meter measuring their water usage. Measured new connections, i.e., those with a meter records the volume of water used and is used to bill the property its use are excluded from reporting. The meter definitions are defined on page 88 of the following document: https://www.ofwat.gov.uk/wp-content/uploads/2021/11/RAG-4.10-%E2%80%93-Guideline-for-the-table-definitions-in-the-annual-performance-report.pdf All new connections to the network are metered and therefore no unmeasured no billed new connections have been reported.
		Water Unmeasured Basic meter	000's	Total number of new residential connections to the company's area of supply for water distribution during the report that are unmeasured i.e. do not use a meter to measure their water usage, but do have a basic (non-smart) meter fitted to the property that could be used to measure water usage in future. This is the number of new residential properties connected within the reporting year that were previously not connected for water supply. This excludes separation of common services (where one supply has been broken into multiple supplies), or other reconnections (reconnecting a supply to the network that was previously connected but had been disconnected for a period of time). Whether the property associated with the new connection is habitable by the year end or not is not considered when reporting this measure. They key driver for inclusion is whether a connection has been made to the company's treated water distribution network during the year or not. This measure includes only new unmeasured connections, i.e. those that do not use a meter measuring their water usage, but do have a basic (non-smart) meter fitted. Measured new connections, i.e., those with a meter that records the volume of water used and is used to bill the property its use, and unmeasured properties fitted with a smart meter are excluded from reporting. The meter definitions are defined on page 88 of the following document: https://www.ofwat.gov.uk/wp-content/uploads/2021/11/RAG-4.10-%E2%80%93-Guideline-for-the-table-definitions-in-the-annual-performance-report.pdf

Water Unmeasured AMR meter	000's	Total number of new residential connections to the company's area of supply for water distribution during the report that are unmeasured i.e. do not use a meter to measure their water usage, but do have an AMR (Automated Meter Reading) meter fitted to the property that could be used to measure water usage in future. This is the number of new residential properties connected within the reporting year that were previously not connected for water supply. This excludes separation of common services (where one supply has been broken into multiple supplies), or other reconnections (reconnecting a supply to the network that was previously connected but had been disconnected for a period of time). Whether the property associated with the new connection is habitable by the year end or not is not considered when reporting this measure. They key driver for inclusion is whether a connection has been made to the company's treated water distribution network during the year or not. This measure includes only new unmeasured connections, i.e. those that do not use a meter measuring their water usage, but do have a AMR meter fitted. Measured new connections, i.e., those with a meter that records the volume of water used and is used to bill the property its use, and unmeasured properties fitted with a basic (non-smart) meter are excluded from reporting. The meter definitions are defined on page 88 of the following document: https://www.ofwat.gov.uk/wp-content/uploads/2021/11/RAG-4.10-%E2%80%93-Guideline-for-the-table-definitions-in-the-annual-performance-report.pdf
Water Unmeasured AMI Capable meter	000's	Total number of new residential connections to the company's area of supply for water distribution during the report that are unmeasured i.e. do not use a meter to measure their water usage, but do have a AMI (Advanced Metering Infrastructure) Capable smart meter fitted to the property that could be used to measure water usage in future. This is the number of new residential properties connected within the reporting year that were previously not connected for water supply. This excludes separation of common services (where one supply has been broken into multiple supplies), or other reconnections (reconnecting a supply to the network that was previously connected but had been disconnected for a period of time). Whether the property associated with the new connection is habitable by the year end or not is not considered when reporting this measure. They key driver for inclusion is whether a connection has been made to the company's treated water distribution network during the year or not. This measure includes only new unmeasured connections, i.e. those that do not use a meter measuring their water usage, but do have an AMI Capable smart meter fitted. Measured new connections, i.e., those with a meter that records the volume of water used and is used to bill the property its use, and unmeasured properties fitted with a basic (non-smart) meter are excluded from reporting. The meter definitions are defined on page 88 of the following document: https://www.ofwat.gov.uk/wp-content/uploads/2021/11/RAG-4.10-%E2%80%93-Guideline-for-the-table-definitions-in-the-annual-performance-report.pdf
Water Unmeasured AMI Active meter	000's	Total number of new residential connections to the company's area of supply for water distribution during the report that are unmeasured i.e. do not use a meter to measure their water usage, but do have a AMI Active smart meter fitted to the property that could be used to measure water usage in future. This is the number of new residential properties connected within the reporting year that were previously not connected for water supply. This excludes separation of common services (where one supply has been broken into multiple supplies), or other reconnections (reconnecting a supply to the network that was previously connected but had been disconnected for a period of time). Whether the property associated with the new connection is habitable by the year end or not is not considered when reporting this measure. They key driver for inclusion is whether a connection has been made to the company's treated water distribution network during the year or not. This measure includes only new unmeasured connections, i.e. those that do not use a meter measuring their water usage, but do have an AMI Active smart meter fitted. Measured new connections, i.e., those with a meter that records the volume of water used and is used to bill the property its use, and unmeasured properties fitted with a basic (non-smart) meter are excluded from reporting. The meter definitions are defined on page 88 of the following document: https://www.ofwat.gov.uk/wp-content/uploads/2021/11/RAG-4.10-%E2%80%93-Guideline-for-the-table-definitions-in-the-annual-performance-report.pdf

Water Unmeasured Total	000's	Total number of new residential connections to the company's area of supply for water distribution during the report that are unmeasured, i.e. do not have a meter measuring their water usage, irrespective of what type of meter (if any) was fitted. This is the number of new residential properties connected within the reporting year that were previously not connected for water supply. This excludes separation of common services (where one supply has been broken into multiple supplies), or other reconnections (reconnecting a supply to the network that was previously connected but had been disconnected for a period of time). Whether the property associated with the new connection is habitable by the year end or not is not considered when reporting this measure. They key driver for inclusion is whether a connection has been made to the company's treated water distribution network during the year or not.
Water Measured No meter	000's	Total number of new residential connections to the company's area of supply for water distribution during the report that are measured i.e., those with a meter records the volume of water used and is used to bill the property its use, but have no meter fitted. This is the number of new residential properties connected within the reporting year that were previously not connected for water supply. This excludes separation of common services (where one supply has been broken into multiple supplies), or other reconnections (reconnecting a supply to the network that was previously connected but had been disconnected for a period of time). Whether the property associated with the new connection is habitable by the year end or not is not considered when reporting this measure. They key driver for inclusion is whether a connection has been made to the company's treated water distribution network during the year or not. This measure includes only new measured connections i.e., those with a meter records the volume of water used and is used to bill the property its use but have no meter fitted. Unmeasured new connections, i.e. do not have a meter measuring their water usage, and measured connections with either a smart or basic meter fitted are excluded from reporting. In reality it is not possible to have a measured property without a meter fitted so this measure will always be reported as zero. The meter definitions are defined on page 88 of the following document: https://www.ofwat.gov.uk/wp-content/uploads/2021/11/RAG-4.10-%E2%80%93-Guideline-for-the-table-definitions-in-the-annual-performance-report.pdf
Water Measured Basic meter	000's	Total number of new residential connections to the company's area of supply for water distribution during the report that are measured i.e., those with a meter records the volume of water used and is used to bill the property its use, and have a basic (non-smart) meter fitted to do so. This is the number of new residential properties connected within the reporting year that were previously not connected for water supply. This excludes separation of common services (where one supply has been broken into multiple supplies), or other reconnections (reconnecting a supply to the network that was previously connected but had been disconnected for a period of time). Whether the property associated with the new connection is habitable by the year end or not is not considered when reporting this measure. They key driver for inclusion is whether a connection has been made to the company's treated water distribution network during the year or not. This measure includes only new measured connections, i.e., those with a meter records the volume of water used and is used to bill the property its use, and that have a basic (non-smart) meter fitted to do so. Unmeasured new connections, i.e. do not have a meter measuring their water usage, and measured properties fitted with a smart meter are excluded from reporting. The meter definitions are defined on page 88 of the following document: https://www.ofwat.gov.uk/wp-content/uploads/2021/11/RAG-4.10-%E2%80%93-Guideline-for-the-table-definitions-in-the-annual-performance-report.pdf

Water Measured AMR meter	000's	Total number of new residential connections to the company's area of supply for water distribution during the report that are measured i.e., those with a meter records the volume of water used and is used to bill the property its use, and have a AMRt meter fitted to do so. This is the number of new residential properties connected within the reporting year that were previously not connected for water supply. This excludes separation of common services (where one supply has been broken into multiple supplies), or other reconnections (reconnecting a supply to the network that was previously connected but had been disconnected for a period of time). Whether the property associated with the new connection is habitable by the year end or not is not considered when reporting this measure. They key driver for inclusion is whether a connection has been made to the company's treated water distribution network during the year or not. This measure includes only new measured connections, i.e., those with a meter records the volume of water used and is used to bill the property its use, and that have an AMR meter fitted to do so. Unmeasured new connections, i.e. do not have a meter measuring their water usage, and measured properties fitted with a basic (non-smart) meter are excluded from reporting. The meter definitions are defined on page 88 of the following document: https://www.ofwat.gov.uk/wp-content/uploads/2021/11/RAG-4.10-%E2%80%93-Guideline-for-the-table-definitions-in-the-annual-performance-report.pdf
Water Measured AMI Capable meter	000's	Total number of new residential connections to the company's area of supply for water distribution during the report that are measured i.e., those with a meter records the volume of water used and is used to bill the property its use, and have a AMI Capable meter fitted to do so. This is the number of new residential properties connected within the reporting year that were previously not connected for water supply. This excludes separation of common services (where one supply has been broken into multiple supplies), or other reconnections (reconnecting a supply to the network that was previously connected but had been disconnected for a period of time). Whether the property associated with the new connection is habitable by the year end or not is not considered when reporting this measure. They key driver for inclusion is whether a connection has been made to the company's treated water distribution network during the year or not. This measure includes only new measured connections, i.e., those with a meter records the volume of water used and is used to bill the property its use, and that have an AMI Capable meter fitted to do so. Unmeasured new connections, i.e. do not have a meter measuring their water usage, and measured properties fitted with a basic (non-smart) meter are excluded from reporting. The meter definitions are defined on page 88 of the following document: https://www.ofwat.gov.uk/wp-content/uploads/2021/11/RAG-4.10-%E2%80%93-Guideline-for-the-table-definitions-in-the-annual-performance-report.pdf
Water Measured AMI Active meter	000's	Total number of new residential connections to the company's area of supply for water distribution during the report that are measured i.e., those with a meter records the volume of water used and is used to bill the property its use, and have a AMI Active meter fitted to do so. This is the number of new residential properties connected within the reporting year that were previously not connected for water supply. This excludes separation of common services (where one supply has been broken into multiple supplies), or other reconnections (reconnecting a supply to the network that was previously connected but had been disconnected for a period of time). Whether the property associated with the new connection is habitable by the year end or not is not considered when reporting this measure. They key driver for inclusion is whether a connection has been made to the company's treated water distribution network during the year or not. This measure includes only new measured connections, i.e., those with a meter records the volume of water used and is used to bill the property its use, and that have an AMI Active meter fitted to do so. Unmeasured new connections, i.e. do not have a meter measuring their water usage, and measured properties fitted with a basic (non-smart) meter are excluded from reporting. The meter definitions are defined on page 88 of the following document: https://www.ofwat.gov.uk/wp-content/uploads/2021/11/RAG-4.10-%E2%80%93-Guideline-for-the-table-definitions-in-the-annual-performance-report.pdf

		Water Measured Total	000's	Total number of new residential connections to the company's area of supply for water distribution during the report that are measured i.e., those with a meter records the volume of water used and is used to bill the property its use, irrespective of what type of meter (if any) was fitted. This is the number of new residential properties connected within the reporting year that were previously not connected for water supply. This excludes separation of common services (where one supply has been broken into multiple supplies), or other reconnections (reconnecting a supply to the network that was previously connected but had been disconnected for a period of time). Whether the property associated with the new connection is habitable by the year end or not is not considered when reporting this measure. They key driver for inclusion is whether a connection has been made to the company's treated water distribution network during the year or not.
4R.18	Total new business properties connected in year	Water Unmeasured No meter	000's	Total number of new business connections to the company's area of supply for water distribution during the report that are unmeasured i.e. do not have a meter measuring their water usage. This is the number of new business properties connected within the reporting year that were previously not connected for water supply. This excludes separation of common services (where one supply has been broken into multiple supplies), or other reconnections (reconnecting a supply to the network that was previously connected but had been disconnected for a period of time). Whether the property associated with the new connection is habitable by the year end or not is not considered when reporting this measure. They key driver for inclusion is whether a connection has been made to the company's treated water distribution network during the year or not. This measure includes only new unmeasured connections, i.e. do not have a meter measuring their water usage. Measured new connections, i.e., those with a meter records the volume of water used and is used to bill the property its use are excluded from reporting. All new connections to the network are metered and therefore no unmeasured, no meter new connections have been reported. The meter definitions are defined on page 88 of the following document: https://www.ofwat.gov.uk/wp-content/uploads/2021/11/RAG-4.10-%E2%80%93-Guideline-for-the-table-definitions-in-the-annual-performance-report.pdf
		Water Unmeasured Basic meter	000's	Total number of new business connections to the company's area of supply for water distribution during the report that are unmeasured i.e. do not use a meter to measure their water usage, but do have a basic (non-smart) meter fitted to the property that could be used to measure water usage in future. This is the number of new business properties connected within the reporting year that were previously not connected for water supply. This excludes separation of common services (where one supply has been broken into multiple supplies), or other reconnections (reconnecting a supply to the network that was previously connected but had been disconnected for a period of time). Whether the property associated with the new connection is habitable by the year end or not is not considered when reporting this measure. They key driver for inclusion is whether a connection has been made to the company's treated water distribution network during the year or not. This measure includes only new unmeasured connections, i.e. those that do not use a meter measuring their water usage, but do have a basic (non-smart) meter fitted. Measured new connections, i.e., those with a meter that records the volume of water used and is used to bill the property its use, and unmeasured properties fitted with a smart meter are excluded from reporting. The meter definitions are defined on page 88 of the following document: https://www.ofwat.gov.uk/wp-content/uploads/2021/11/RAG-4.10-%E2%80%93-Guideline-for-the-table-definitions-in-the-annual-performance-report.pdf
		Water Unmeasured AMR meter	000's	Total number of new business connections to the company's area of supply for water distribution during the report that are unmeasured i.e. do not use a meter to measure their water usage, but do have a AMR meter fitted to the property that could be used to measure water usage in future. This is the number of new business properties connected within the reporting year that were previously not connected for water supply. This excludes separation of common services (where one supply has been broken into multiple supplies), or other reconnections (reconnecting a supply to the network that was previously connected but had been disconnected for a period of time). Whether the property associated with the new connection is habitable by the year end or not is not considered when reporting this measure. They key driver for inclusion is whether a connection has been made to the company's treated water distribution network during the year or not. This measure includes only new unmeasured connections, i.e. those that do not use a meter measuring their water usage, but do have a smart meter fitted. Measured new connections, i.e., those with a meter that records the volume of water used and is used to bill the property its use, and unmeasured properties fitted with a an AMR meter are excluded from reporting.

		The meter definitions are defined on page 88 of the following document: https://www.ofwat.gov.uk/wp-content/uploads/2021/11/RAG-4.10-%E2%80%93-Guideline-for-the-table-definitions-in-the-annual-performance-report.pdf
Water Unmeasured AMI Capable meter	000's	Total number of new business connections to the company's area of supply for water distribution during the report that are unmeasured i.e. do not use a meter to measure their water usage, but do have a AMI Capable meter fitted to the property that could be used to measure water usage in future. This is the number of new business properties connected within the reporting year that were previously not connected for water supply. This excludes separation of common services (where one supply has been broken into multiple supplies), or other reconnections (reconnecting a supply to the network that was previously connected but had been disconnected for a period of time). Whether the property associated with the new connection is habitable by the year end or not is not considered when reporting this measure. The key driver for inclusion is whether a connection has been made to the company's treated water distribution network during the year or not. This measure includes only new unmeasured connections, i.e. those that do not use a meter measuring their water usage, but do have a smart meter fitted. Measured new connections, i.e., those with a meter that records the volume of water used and is used to bill the property its use, and unmeasured properties fitted with an AMI Capable meter are excluded from reporting. The meter definitions are defined on page 88 of the following document: https://www.ofwat.gov.uk/wp-content/uploads/2021/11/RAG-4.10-%E2%80%93-Guideline-for-the-table-definitions-in-the-annual-performance-report.pdf
Water Unmeasured AMI Active meter	000's	Total number of new business connections to the company's area of supply for water distribution during the report that are unmeasured i.e. do not use a meter to measure their water usage, but do have a AMI Active meter fitted to the property that could be used to measure water usage in future. This is the number of new business properties connected within the reporting year that were previously not connected for water supply. This excludes separation of common services (where one supply has been broken into multiple supplies), or other reconnections (reconnecting a supply to the network that was previously connected but had been disconnected for a period of time). Whether the property associated with the new connection is habitable by the year end or not is not considered when reporting this measure. The key driver for inclusion is whether a connection has been made to the company's treated water distribution network during the year or not. This measure includes only new unmeasured connections, i.e. those that do not use a meter measuring their water usage, but do have a smart meter fitted. Measured new connections, i.e., those with a meter that records the volume of water used and is used to bill the property its use, and unmeasured properties fitted with an AMI Active meter are excluded from reporting. The meter definitions are defined on page 88 of the following document: https://www.ofwat.gov.uk/wp-content/uploads/2021/11/RAG-4.10-%E2%80%93-Guideline-for-the-table-definitions-in-the-annual-performance-report.pdf
Water Unmeasured Total	000's	Total number of new business connections to the company's area of supply for water distribution during the report that are unmeasured, i.e. do not have a meter measuring their water usage, irrespective of what type of meter (if any) was fitted. This is the number of new business properties connected within the reporting year that were previously not connected for water supply. This excludes separation of common services (where one supply has been broken into multiple supplies), or other reconnections (reconnecting a supply to the network that was previously connected but had been disconnected for a period of time). Whether the property associated with the new connection is habitable by the year end or not is not considered when reporting this measure. They key driver for inclusion is whether a connection has been made to the company's treated water distribution network during the year or not.

Water Measured No meter	000's	Total number of new business connections to the company's area of supply for water distribution during the report that are measured i.e., those with a meter records the volume of water used and is used to bill the property its use, but have no meter fitted. This is the number of new business properties connected within the reporting year that were previously not connected for water supply. This excludes separation of common services (where one supply has been broken into multiple supplies), or other reconnections (reconnecting a supply to the network that was previously connected but had been disconnected for a period of time). Whether the property associated with the new connection is habitable by the year end or not is not considered when reporting this measure. They key driver for inclusion is whether a connection has been made to the company's treated water distribution network during the year or not. This measure includes only new measured connections i.e., those with a meter records the volume of water used and is used to bill the property its use but have no meter fitted. Unmeasured new connections, i.e. do not have a meter measuring their water usage, and measured connections with either a smart or basic meter fitted are excluded from reporting. In reality it is not possible to have a measured property without a meter fitted so this measure will always be reported as zero. The meter definitions are defined on page 88 of the following document: https://www.ofwat.gov.uk/wp-content/uploads/2021/11/RAG-4.10-%E2%80%93-Guideline-for-the-table-definitions-in-the-annual-performance-report.pdf
Water Measured Basic meter	000's	Total number of new business connections to the company's area of supply for water distribution during the report that are measured i.e., those with a meter records the volume of water used and is used to bill the property its use, and have a basic (non-smart) meter fitted to do so. This is the number of new business properties connected within the reporting year that were previously not connected for water supply. This excludes separation of common services (where one supply has been broken into multiple supplies), or other reconnections (reconnecting a supply to the network that was previously connected but had been disconnected for a period of time). Whether the property associated with the new connection is habitable by the year end or not is not considered when reporting this measure. They key driver for inclusion is whether a connection has been made to the company's treated water distribution network during the year or not. This measure includes only new measured connections, i.e., those with a meter records the volume of water used and is used to bill the property its use, and that have a basic (non-smart) meter fitted to do so. Unmeasured new connections, i.e. do not have a meter measuring their water usage, and measured properties fitted with a smart meter are excluded from reporting. The meter definitions are defined on page 88 of the following document: https://www.ofwat.gov.uk/wp-content/uploads/2021/11/RAG-4.10-%E2%80%93-Guideline-for-the-table-definitions-in-the-annual-performance-report.pdf
Water Measured AMR	000's	Total number of new business connections to the company's area of supply for water distribution during the report that are measured i.e., those with a meter records the volume of water used and is used to bill the property its use, and have an AMRt meter fitted to do so. This is the number of new business properties connected within the reporting year that were previously not connected for water supply. This excludes separation of common services (where one supply has been broken into multiple supplies), or other reconnections (reconnecting a supply to the network that was previously connected but had been disconnected for a period of time). Whether the property associated with the new connection is habitable by the year end or not is not considered when reporting this measure. The key driver for inclusion is whether a connection has been made to the company's treated water distribution network during the year or not. This measure includes only new measured connections, i.e., those with a meter records the volume of water used and is used to bill the property its use, and that have an AMR meter fitted to do so. Unmeasured new connections, i.e. do not have a meter measuring their water usage, and measured properties fitted with a basic (non-smart) meter are excluded from reporting. The meter definitions are defined on page 88 of the following document: https://www.ofwat.gov.uk/wp-content/uploads/2021/11/RAG-4.10-%E2%80%93-Guideline-for-the-table-definitions-in-the-annual-performance-report.pdf

		Water Measured AMI Capable meter	000's	Total number of new business connections to the company's area of supply for water distribution during the report that are measured i.e., those with a meter records the volume of water used and is used to bill the property its use, and have an AMI Capable meter fitted to do so. This is the number of new business properties connected within the reporting year that were previously not connected for water supply. This excludes separation of common services (where one supply has been broken into multiple supplies), or other reconnections (reconnecting a supply to the network that was previously connected but had been disconnected for a period of time). Whether the property associated with the new connection is habitable by the year end or not is not considered when reporting this measure. The key driver for inclusion is whether a connection has been made to the company's treated water distribution network during the year or not. This measure includes only new measured connections, i.e., those with a meter records the volume of water used and is used to bill the property for its use, and that have an AMI Capable meter fitted to do so. Unmeasured new connections, i.e. do not have a meter measuring their water usage, and measured properties fitted with a basic (non-smart) meter are excluded from reporting. The meter definitions are defined on page 88 of the following document: https://www.ofwat.gov.uk/wp-content/uploads/2021/11/RAG-4.10-%E2%80%93-Guideline-for-the-table-definitions-in-the-annual-performance-report.pdf
		Water Measured AMI Active meter	000's	Total number of new business connections to the company's area of supply for water distribution during the report that are measured i.e., those with a meter records the volume of water used and is used to bill the property its use, and have an AMI Active meter fitted to do so. This is the number of new business properties connected within the reporting year that were previously not connected for water supply. This excludes separation of common services (where one supply has been broken into multiple supplies), or other reconnections (reconnecting a supply to the network that was previously connected but had been disconnected for a period of time). Whether the property associated with the new connection is habitable by the year end or not is not considered when reporting this measure. The key driver for inclusion is whether a connection has been made to the company's treated water distribution network during the year or not. This measure includes only new measured connections, i.e., those with a meter records the volume of water used and is used to bill the property for its use, and that have an AMI Active meter fitted to do so. Unmeasured new connections, i.e. do not have a meter measuring their water usage, and measured properties fitted with a basic (non-smart) meter are excluded from reporting. The meter definitions are defined on page 88 of the following document: https://www.ofwat.gov.uk/wp-content/uploads/2021/11/RAG-4.10-%E2%80%93-Guideline-for-the-table-definitions-in-the-annual-performance-report.pdf
		Water Measured Total	000's	Total number of new business connections to the company's area of supply for water distribution during the report that are measured i.e., those with a meter records the volume of water used and is used to bill the property its use, irrespective of what type of meter (if any) was fitted. This is the number of new business properties connected within the reporting year that were previously not connected for water supply. This excludes separation of common services (where one supply has been broken into multiple supplies), or other reconnections (reconnecting a supply to the network that was previously connected but had been disconnected for a period of time). Whether the property associated with the new connection is habitable by the year end or not is not considered when reporting this measure. The key driver for inclusion is whether a connection has been made to the company's treated water distribution network during the year or not. This measure includes only new measured connections, i.e., those with a meter records the volume of water used and is used to bill the property for its use, irrespective of meter type (if any) fitted. Unmeasured new connections, i.e. do not have a meter measuring their water usage, are excluded from reporting.
4R.19	Residential properties billed at year end	Water Unmeasured No meter	000's	The number of billed unmeasured i.e., do not have a meter measuring their water usage, residential properties who NWL supply water services to that do not have a meter fitted to the property as at 31 March 2022. For the avoidance of doubt, this includes both water only properties, and dual water and wastewater services properties. Excluded from the reporting for this line are: void properties (properties connected to the sewerage system but do not receive a charge as there are no occupants), non-household (business) properties, measured properties, i.e., those with a meter records the volume of water used and is used to bill the property its use, and unmeasured properties that have a meter fitted. The meter definitions are defined on page 88 of the following document: https://www.ofwat.gov.uk/wp-content/uploads/2021/11/RAG-4.10-%E2%80%93-Guideline-for-the-table-definitions-in-the-annual-performance-report.pdf

Water Unmeasured Basic meter	000's	The number of billed unmeasured i.e., do not have a meter measuring their water usage, residential properties who NWL supply water services to that have a basic (non-smart) meter fitted to the property as at 31 March 2022. For the avoidance of doubt, this includes both water only properties, and dual water and wastewater services properties. Excluded from the reporting for this line are: void properties (properties connected to the sewerage system but do not receive a charge as there are no occupants), non-household (business) properties, measured properties, i.e., those with a meter records the volume of water used and is used to bill the property its use, and unmeasured properties that have a AMR, AMI Capable, AMI Activemeter fitted or have no meter fitted. Unmeasured properties with a basic meter fitted occur when a customer for a property decides they want to switch from being a measured to unmeasured customer but the meter remains attached to the property so it could be used in future. This only occurs in limited circumstances because once a property is measured it typically remains that way and cannot be reverted back to unmeasured. The meter definitions are defined on page 88 of the following document: https://www.ofwat.gov.uk/wp-content/uploads/2021/11/RAG-4.10-%E2%80%93-Guideline-for-the-table-definitions-in-the-annual-performance-report.pdf
Water Unmeasured AMR Meter	000's	The number of billed unmeasured i.e., do not have a meter measuring their water usage, residential properties who NWL supply water services to that have an AMR meter fitted to the property as at 31 March 2022. For the avoidance of doubt, this includes both water only properties, and dual water and wastewater services properties. Excluded from the reporting for this line are: void properties (properties connected to the sewerage system but do not receive a charge as there are no occupants), non-household (business) properties, measured properties, i.e., those with a meter records the volume of water used and is used to bill the property its use, and unmeasured properties that have a basic, AMI Capable, AMI Active meter fitted or have no meter fitted. Unmeasured properties with a AMR meter fitted occur when a customer for a property decides they want to switch from being a measured to unmeasured customer but the meter remains attached to the property so it could be used in future. This only occurs in limited circumstances because once a property is measured it typically remains that way and cannot be reverted back to unmeasured. The meter definitions are defined on page 88 of the following document: https://www.ofwat.gov.uk/wp-content/uploads/2021/11/RAG-4.10-%E2%80%93-Guideline-for-the-table-definitions-in-the-annual-performance-report.pdf
Water Unmeasured AMI Capable meter	000's	The number of billed unmeasured i.e., do not have a meter measuring their water usage, residential properties who NWL supply water services to that have an AMI Capable Smart Meter fitted to the property as at 31 March 2022. For the avoidance of doubt, this includes both water only properties, and dual water and wastewater services properties. Excluded from the reporting for this line are: void properties (properties connected to the sewerage system but do not receive a charge as there are no occupants), non-household (business) properties, measured properties, i.e., those with a meter records the volume of water used and is used to bill the property its use, and unmeasured properties that have a basic, AMR, AMI Active meter fitted or have no meter fitted. Unmeasured properties with a AMI Capable smart meter fitted occur when a customer for a property decides they want to switch from being a measured to unmeasured customer but the meter remains attached to the property so it could be used in future. This only occurs in limited circumstances because once a property is measured it typically remains that way and cannot be reverted back to unmeasured. The meter definitions are defined on page 88 of the following document: https://www.ofwat.gov.uk/wp-content/uploads/2021/11/RAG-4.10-%E2%80%93-Guideline-for-the-table-definitions-in-the-annual-performance-report.pdf
Water Unmeasured AMI Active	000's	The number of billed unmeasured i.e., do not have a meter measuring their water usage, residential properties who NWL supply water services to that have an AMI Active Smart Meter fitted to the property as at 31 March 2022. For the avoidance of doubt, this includes both water only properties, and dual water and wastewater services properties. Excluded from the reporting for this line are: void properties (properties connected to the sewerage system but do not receive a charge as there are no occupants), non-household (business) properties, measured properties, i.e., those with a meter records the volume of water used and is used to bill the property its use, and unmeasured properties that have a basic, AMR, AMI Capable meter fitted or have no meter fitted. Unmeasured properties with a AMI Active smart meter fitted occur when a customer for a property decides they want to switch from being a measured to unmeasured customer but the meter remains attached to the property so it could be used in future. This only occurs in limited circumstances because once a property is measured it typically remains that way and cannot be reverted back to unmeasured. The meter definitions are defined on page 88 of the following document: https://www.ofwat.gov.uk/wp-content/uploads/2021/11/RAG-4.10-%E2%80%93-Guideline-for-the-table-definitions-in-the-annual-performance-report.pdf

Water Unmeasured Total	000's	The number of billed unmeasured i.e., do not have a meter measuring their water usage, residential properties who NWL supply water services as at 31 March 2022. For the avoidance of doubt, this includes both water only properties, and dual water and wastewater services properties, and all properties regardless what type, if any, meter they have fitted. Excluded from the reporting for this line are: void properties (properties connected to the sewerage system but do not receive a charge as there are no occupants), non-household (business) properties, and measured properties, i.e., those with a meter records the volume of water used and is used to bill the property its use.
Water Measured No meter	000's	The number of billed measured i.e., those with a meter records the volume of water used and is used to bill the property its use, residential properties who NWL supply water services to that do not have a meter fitted to the property as at 31 March 2022. For the avoidance of doubt, this includes both water only properties, and dual water and wastewater services properties. Excluded from the reporting for this line are: void properties (properties connected to the sewerage system but do not receive a charge as there are no occupants), non-household (business) properties, unmeasured properties, i.e., do not have a meter measuring their water usage, and measured properties that do not have a meter fitted. In reality it is not possible to have a measured property without a meter fitted so this measure will always be reported as zero. The meter definitions are defined on page 88 of the following document: https://www.ofwat.gov.uk/wp-content/uploads/2021/11/RAG-4.10-%E2%80%93-Guideline-for-the-table-definitions-in-the-annual-performance-report.pdf
Water Measured Basic meter	000's	The number of billed measured i.e., those with a meter records the volume of water used and is used to bill the property its use, residential properties who NWL supply water services to that have a basic (non-smart) meter fitted to the property as at 31 March 2022. For the avoidance of doubt, this includes both water only properties, and dual water and wastewater services properties. Excluded from the reporting for this line are: void properties (properties connected to the sewerage system but do not receive a charge as there are no occupants), non-household (business) properties, unmeasured properties, i.e., do not have a meter measuring their water usage, and measured properties that have a smart meter fitted or have no meter fitted. The meter definitions are defined on page 88 of the following document: https://www.ofwat.gov.uk/wp-content/uploads/2021/11/RAG-4.10-%E2%80%93-Guideline-for-the-table-definitions-in-the-annual-performance-report.pdf
Water Measured AMR Meter	000's	The number of billed measured i.e., those with a meter records the volume of water used and is used to bill the property its use, residential properties who NWL supply water services to that have a AMR meter fitted to the property as at 31 March 2022. For the avoidance of doubt, this includes both water only properties, and dual water and wastewater services properties. Excluded from the reporting for this line are: void properties (properties connected to the sewerage system but do not receive a charge as there are no occupants), non-household (business) properties, unmeasured properties, i.e., do not have a meter measuring their water usage, and measured properties that have a basic meter fitted or have no meter fitted. The meter definitions are defined on page 88 of the following document: https://www.ofwat.gov.uk/wp-content/uploads/2021/11/RAG-4.10-%E2%80%93-Guideline-for-the-table-definitions-in-the-annual-performance-report.pdf
Water Measured AMI Capable	000's	The number of billed measured i.e., those with a meter records the volume of water used and is used to bill the property its use, residential properties who NWL supply water services to that have a AMI Capable smart meter fitted to the property as at 31 March 2022. For the avoidance of doubt, this includes both water only properties, and dual water and wastewater services properties. Excluded from the reporting for this line are: void properties (properties connected to the sewerage system but do not receive a charge as there are no occupants), non-household (business) properties, unmeasured properties, i.e., do not have a meter measuring their water usage, and measured properties that have a basic meter fitted or have no meter fitted. The meter definitions are defined on page 88 of the following document: https://www.ofwat.gov.uk/wp-content/uploads/2021/11/RAG-4.10-%E2%80%93-Guideline-for-the-table-definitions-in-the-annual-performance-report.pdf

		Water Measured AMI Active	000's	The number of billed measured i.e., those with a meter records the volume of water used and is used to bill the property its use, residential properties who NWL supply water services to that have a AMI Active smart meter fitted to the property as at 31 March 2022. For the avoidance of doubt, this includes both water only properties, and dual water and wastewater services properties. Excluded from the reporting for this line are: void properties (properties connected to the sewerage system but do not receive a charge as there are no occupants), non-household (business) properties, unmeasured properties, i.e., do not have a meter measuring their water usage, and measured properties that have a basic meter fitted or have no meter fitted. The meter definitions are defined on page 88 of the following document: https://www.ofwat.gov.uk/wp-content/uploads/2021/11/RAG-4.10-%E2%80%93-Guideline-for-the-table-definitions-in-the-annual-performance-report.pdf
		Water Measured Total	000's	The number of billed measured i.e., those with a meter records the volume of water used and is used to bill the property its use, residential properties who NWL supply water services as at 31 March 2022. For the avoidance of doubt, this includes both water only properties, and dual water and wastewater services properties, and all properties regardless what type, if any, meter they have fitted. Excluded from the reporting for this line are: void properties (properties connected to the sewerage system but do not receive a charge as there are no occupants), non-household (business) properties, and unmeasured properties i.e., do not have a meter measuring their water usage.
		Total	000's	The number reported is the sum of the "Water Unmeasured Total" and "Water measured Total" reported in line 4R.19. See above for criteria for how these reported figures are calculated .
4R.20	Residential properties unbilled at year end	Uneconomic to bill	000's	The number of residential properties which remain unbilled as at 31 March 2022. Uneconomic to bill the customer refers to situations where it would cost more to raise and send the bill than what the bill amount is worth. Excluded from the reporting for this line are: void properties (properties connected to the sewerage system but do not receive a charge as there are no occupants), non-household (business) properties, and residential billed properties.

		Other	000's	The number of residential properties which remain unbilled as at 31 March 2022. Properties which are identified as Unbilled for other reasons except that they are uneconomic to bill. Other unbilled properties reported in the current year are: - Company Officials: historical contracts of employment where free water charges were part of the terms and conditions. This allowance continued once the employee retired from the company. - Free Supply: Old property land / lease agreements where free water charges were agreed as part of the lease. They relate a small number of specific properties. Excluded from the reporting for this line are: void properties (properties connected to the sewerage system but do not receive a charge as there are no occupants), non-household (business) properties, and residential billed properties
		Total	000's	The number reported is the sum of "Uneconomic to bill" and "other" reported in line 4R.20. See above for commentary of how these reported figures are calculated .
4R.21	Residential void properties at year end	Water Unmeasured Total	000's	The number of void unmeasured, i.e., do not have a meter measuring their water usage, residential properties who NWL supply water to as at 31 March 2022. For the avoidance of doubt, this includes both water only properties, and dual water and wastewater services properties, and all properties regardless what type, if any, meter they have fitted. A void property is defined as one that does not receive a charge for its services because it is unoccupied. *Note: for the purposes of the definition of "void" above, a property that is occupied but not charged for the service(s) it receives is considered void, unless it has been deemed uneconomical to bill, meaning: the incremental cost of sending a bill and the normal incremental cost of processing a payment made promptly in response to the bill is likely to be greater than the bill itself year.* Excluded from the reporting for this line are: occupied properties (properties that are billed for the water they use), non-household (business) properties, and measured i.e., those with a meter records the volume of water used and is used to bill the property its use.
		Water Measured Total	000's	The number of void measured, i.e., those with a meter records the volume of water used and is used to bill the property its use, residential properties who NWL supply water to as at 31 March 2022. For the avoidance of doubt, this includes both water only properties, and dual water and wastewater services properties, and all properties regardless what type, if any, meter they have fitted. A void property is defined as one that does not receive a charge for its services because it is unoccupied. *Note: for the purposes of the definition of "void" above, a property that is occupied but not charged for the service(s) it receives is considered void, unless it has been deemed uneconomical to bill, meaning: the incremental cost of sending a bill and the normal incremental cost of processing a payment made promptly in response to the bill is likely to be greater than the bill itself year.* Excluded from the reporting for this line are: occupied properties (properties that are billed for the water they use), non-household (business) properties, and unmeasured i.e., do not have a meter measuring their water usage.
		Total	000's	The number reported is the sum of the Void properties reported in "Water Unmeasured Total" and "Water measured Total" element of line 4R.21. See criteria above for how these reported figures are calculated

4R.22	Total connected residential properties at year end	Water Unmeasured Total	000's	The total number of residential, unmeasured, i.e., do not have a meter measuring their water usage, properties connected to the company's water distribution system as at 31 March 2022. This includes void and is calculated as the sum of the total properties in lines 4R.19 and 4R.21.
		Water Measured Total	000's	The total number of residential, measured, i.e., those with a meter records the volume of water used and is used to bill the property its use, properties connected to the company's water distribution system as at 31 March 2022. This includes void properties and is calculated as the sum of the total properties in lines 4R.19 and 4R.21.
		Total	000's	The total number of residential properties connected to the company's water distribution system as at 31 March 2022. This includes both void and unbilled properties and is calculated as a sum of the total properties in lines 4.19, 4R.20 and 4R.21.
4R.23	Business properties billed at year end	Water Unmeasured No meter	000's	The number of billed unmeasured i.e., do not have a meter measuring their water usage, business properties who NWL supply water services to that do not have a meter fitted to the property as at 31 March 2022. For the avoidance of doubt, this includes both water only properties, and dual water and wastewater services properties. Excluded from the reporting for this line are: void properties (properties connected to the sewerage system but do not receive a charge as there are no occupants), household (residential) properties, measured properties, i.e., those with a meter records the volume of water used and is used to bill the property its use, and unmeasured properties that have a meter fitted. The meter definitions are defined on page 88 of the following document: https://www.ofwat.gov.uk/wp-content/uploads/2021/11/RAG-4.10-%E2%80%93-Guideline-for-the-table-definitions-in-the-annual-performance-report.pdf
		Water Unmeasured Basic meter	000's	The number of billed unmeasured i.e., do not have a meter measuring their water usage, business properties who NWL supply water services to that have a basic (non-smart) meter fitted to the property as at 31 March 2022. For the avoidance of doubt, this includes both water only properties, and dual water and wastewater services properties. Excluded from the reporting for this line are: void properties (properties connected to the sewerage system but do not receive a charge as there are no occupants), household (residential) properties, measured properties, i.e., those with a meter records the volume of water used and is used to bill the property its use, and unmeasured properties that have a AMR, AMI Capable, AMI Activemeter fitted or have no meter fitted. In reality when a business property becomes metered the retailer charges these as a measured property so this is reported as zero. The meter definitions are defined on page 88 of the following document: https://www.ofwat.gov.uk/wp-content/uploads/2021/11/RAG-4.10-%E2%80%93-Guideline-for-the-table-definitions-in-the-annual-performance-report.pdf
		Water Unmeasured AMR Meter	000's	The number of billed unmeasured i.e., do not have a meter measuring their water usage, business properties who NWL supply water services to that have an AMR t meter fitted to the property as at 31 March 2022. For the avoidance of doubt, this includes both water only properties, and dual water and wastewater services properties. Excluded from the reporting for this line are: void properties (properties connected to the sewerage system but do not receive a charge as there are no occupants), household (residential) properties, measured properties, i.e., those with a meter records the volume of water used and is used to bill the property its use, and unmeasured properties that have a basic, AMI Capable, AMI Active meter fitted or have no meter fitted. In reality when a business property becomes metered the retailer charges these as a measured property so this is reported as zero. The meter definitions are defined on page 88 of the following document: https://www.ofwat.gov.uk/wp-content/uploads/2021/11/RAG-4.10-%E2%80%93-Guideline-for-the-table-definitions-in-the-annual-performance-report.pdf

Water Unmeasured AMI Capable Meter	000's	The number of billed unmeasured i.e., do not have a meter measuring their water usage, business properties who NWL supply water services to that have an AMR smart meter fitted to the property as at 31 March 2022. For the avoidance of doubt, this includes both water only properties, and dual water and wastewater services properties. Excluded from the reporting for this line are: void properties (properties connected to the sewerage system but do not receive a charge as there are no occupants), household (residential) properties, measured properties, i.e., those with a meter records the volume of water used and is used to bill the property its use, and unmeasured properties that have a basic, AMR, AMI Active meter fitted or have no meter fitted. In reality when a business property becomes metered the retailer charges these as a measured property so this is reported as zero. The meter definitions are defined on page 88 of the following document: https://www.ofwat.gov.uk/wp-content/uploads/2021/11/RAG-4.10-%E2%80%93-Guideline-for-the-table-definitions-in-the-annual-performance-report.pdf
Water Unmeasured AMI Active Meter	000's	The number of billed unmeasured i.e., do not have a meter measuring their water usage, business properties who NWL supply water services to that have an AMR smart meter fitted to the property as at 31 March 2022. For the avoidance of doubt, this includes both water only properties, and dual water and wastewater services properties. Excluded from the reporting for this line are: void properties (properties connected to the sewerage system but do not receive a charge as there are no occupants), household (residential) properties, measured properties, i.e., those with a meter records the volume of water used and is used to bill the property its use, and unmeasured properties that have a basic, AMR, AMI Capable meter fitted or have no meter fitted. In reality when a business property becomes metered the retailer charges these as a measured property so this is reported as zero. The meter definitions are defined on page 88 of the following document: https://www.ofwat.gov.uk/wp-content/uploads/2021/11/RAG-4.10-%E2%80%93-Guideline-for-the-table-definitions-in-the-annual-performance-report.pdf
Water Unmeasured Total	000's	The number of billed unmeasured i.e., do not have a meter measuring their water usage, business properties who NWL supply water services as at 31 March 2021. For the avoidance of doubt, this includes both water only properties, and dual water and wastewater services properties, and all properties regardless what type, if any, meter they have fitted. Excluded from the reporting for this line are: void properties (properties connected to the sewerage system but do not receive a charge as there are no occupants), household (residential) properties, and measured properties, i.e., those with a meter records the volume of water used and is used to bill the property its use.
Water Measured No meter	000's	The number of billed measured i.e., those with a meter records the volume of water used and is used to bill the property its use, business properties who NWL supply water services to that do not have a meter fitted to the property as at 31 March 2022. For the avoidance of doubt, this includes both water only properties, and dual water and wastewater services properties. Excluded from the reporting for this line are: void properties (properties connected to the sewerage system but do not receive a charge as there are no occupants), household residential) properties, unmeasured properties, i.e., do not have a meter measuring their water usage, and measured properties that do not have a meter fitted. In reality it is not possible to have a measured property without a meter fitted so this measure will always be reported as zero. The meter definitions are defined on page 88 of the following document: https://www.ofwat.gov.uk/wp-content/uploads/2021/11/RAG-4.10-%E2%80%93-Guideline-for-the-table-definitions-in-the-annual-performance-report.pdf
Water Measured Basic meter	000's	The number of billed measured i.e., those with a meter records the volume of water used and is used to bill the property its use, business properties who NWL supply water services to that have a basic (non-smart) meter fitted to the property as at 31 March 2022. For the avoidance of doubt, this includes both water only properties, and dual water and wastewater services properties. Excluded from the reporting for this line are: void properties (properties connected to the sewerage system but do not receive a charge as there are no occupants), household (residential) properties, unmeasured properties, i.e., do not have a meter measuring their water usage, and measured properties that have a AMR, AMI Capable, AMI Activet meter fitted or have no meter fitted.

Water Measured AMR Meter	000's	The number of billed measured i.e., those with a meter records the volume of water used and is used to bill the property its use, business properties who NWL supply water services to that have a AMR meter fitted to the property as at 31 March 2022. For the avoidance of doubt, this includes both water only properties, and dual water and wastewater services properties. Excluded from the reporting for this line are: void properties (properties connected to the sewerage system but do not receive a charge as there are no occupants), household (residential) properties, unmeasured properties, i.e., do not have a meter measuring their water usage, and measured properties that have a basic, AMI Capable, AMI Active meter fitted or have no meter fitted. The meter definitions are defined on page 88 of the following document: https://www.ofwat.gov.uk/wp-content/uploads/2021/11/RAG-4.10-%E2%80%93-Guideline-for-the-table-definitions-in-the-annual-performance-report.pdf
Water Measured AMI Capable meter	000's	The number of billed measured i.e., those with a meter that records the volume of water used and is used to bill the property for its use, business properties who NWL supply water services to that have an AMI Capable meter fitted to the property as at 31 March 2022. For the avoidance of doubt, this includes both water only properties, and dual water and wastewater services properties. Excluded from the reporting for this line are: void properties (properties connected to the sewerage system but do not receive a charge as there are no occupants), household (residential) properties, unmeasured properties, i.e., do not have a meter measuring their water usage, and measured properties that have a basic, AMR, AMI Active meter fitted or have no meter fitted. The meter definitions are defined on page 88 of the following document: https://www.ofwat.gov.uk/wp-content/uploads/2021/11/RAG-4.10-%E2%80%93-Guideline-for-the-table-definitions-in-the-annual-performance-report.pdf
Water Measured AMI Active	000's	The number of billed measured i.e., those with a meter that records the volume of water used and is used to bill the property for its use, business properties who NWL supply water services to that have an AMI Active meter fitted to the property as at 31 March 2022. For the avoidance of doubt, this includes both water only properties, and dual water and wastewater services properties. Excluded from the reporting for this line are: void properties (properties connected to the sewerage system but do not receive a charge as there are no occupants), household (residential) properties, unmeasured properties, i.e., do not have a meter measuring their water usage, and measured properties that have a basic, AMR, AMI Capable meter fitted or have no meter fitted. The meter definitions are defined on page 88 of the following document: https://www.ofwat.gov.uk/wp-content/uploads/2021/11/RAG-4.10-%E2%80%93-Guideline-for-the-table-definitions-in-the-annual-performance-report.pdf
Water Measured Total	000's	The number of billed measured i.e., those with a meter that records the volume of water used and is used to bill the property for its use, business properties who NWL supply water services as at 31 March 2022. For the avoidance of doubt, this includes both water only properties, and dual water and wastewater services properties, and all properties regardless what type, if any, meter they have fitted. Excluded from the reporting for this line are: void properties (properties connected to the sewerage system but do not receive a charge as there are no occupants), household (residential) properties, and unmeasured properties i.e., do not have a meter measuring their water usage.
Total	000's	The number reported is the sum of the "Water Unmeasured Total" and "Water measured Total" reported in line 4R.23. See above for criteria how these reported figures are calculated .

4R.24	Business properties Unbilled at year end	Uneconomic to bill	000's	The number of business properties which remain unbilled as at 31 March 2022 that are defined as uneconomic to bill. Uneconomic to bill the customer refers to situations where it would cost more to raise and send the bill than what the bill amount is worth. Excluded from the reporting for this line are: void properties (properties connected to the sewerage system but do not receive a charge as there are no occupants), household (residential) properties, and business billed properties.
		Other	000's	The number of residential properties which remain unbilled as at 31 March 2022 for reasons other than they are uneconomic to bill. Other unbilled properties reported in the current year are: - Northumbrian Water Limited own offices, WTW and STW as these are supplied with water but they do not bill themselves. Excluded from NWL properties are: Septic Tanks,Pumping Stations,Reservoirs,Treated Water Storage, Water Intakes,Groundwater Sources The reason for this is that they will not have a water supply, only the sewage treatment works and water treatment works will have a water supply. Excluded from the reporting for this line are: void properties (properties connected to the sewerage system but do not receive a charge as there are no occupants), household (residential) properties, and business billed properties
		Total	000's	The number reported is the sum of "Uneconomic to bill" and "other" reported in line 4R.24. See above for commentary of how these reported figures are calculated .
4R.25	Business void properties at year end	Water Unmeasured Total	000's	The number of void unmeasured, i.e., do not have a meter measuring their water usage, business properties who NWL supply water to as at 31 March 2022. For the avoidance of doubt, this includes both water only properties, and dual water and wastewater services properties, and all properties regardless what type, if any, meter they have fitted. A void property is defined as one that does not receive a charge for its services because it is unoccupied. *Note: for the purposes of the definition of "void" above, a property that is occupied but not charged for the service(s) it receives is considered void, unless it has been deemed uneconomical to bill, meaning: the incremental cost of sending a bill and the normal incremental cost of processing a payment made promptly in response to the bill is likely to be greater than the bill itself year.* Excluded from the reporting for this line are: occupied properties (properties that are billed for the water they use), household (residential) properties, and measured i.e., those with a meter records the volume of water used and is used to bill the property its use.

		Water Measured Total	000's	The number of void measured, i.e., those with a meter records the volume of water used and is used to bill the property its use, business properties who NWL supply water to as at 31 March 2022. For the avoidance of doubt, this includes both water only properties, and dual water and wastewater services properties, and all properties regardless what type, if any, meter they have fitted. A void property is defined as one that does not receive a charge for its services because it is unoccupied. *Note: for the purposes of the definition of "void" above, a property that is occupied but not charged for the service(s) it receives is considered void, unless it has been deemed uneconomical to bill, meaning: the incremental cost of sending a bill and the normal incremental cost of processing a payment made promptly in response to the bill is likely to be greater than the bill itself year.* Excluded from the reporting for this line are: occupied properties (properties that are billed for the water they use), household (residential) properties, and unmeasured i.e., do not have a meter measuring their water usage.
		Total	000's	The number reported is the sum of the Void properties reported in "Water Unmeasured Total" and "Water measured Total" element of line 4R.25. See above for criteria how these reported figures are calculated .
4R.26	Total connected business properties at year end	Water Unmeasured Total	000's	The total number of business, unmeasured, i.e., do not have a meter measuring their water usage, properties connected to the company's water distribution system as at 31 March 2022 This includes void properties and is calculated as the sum of the total properties in lines 4R.23, and 4R.25.
		Water Measured Total	000's	The total number of business, measured, i.e., those with a meter records the volume of water used and is used to bill the property its use, properties connected to the company's water distribution system as at 31 March 2022. This includes void properties and is calculated as the sum of the total properties in lines 4R.23 and 4R.25.
		Total	000's	The total number of business properties connected to the company's water distribution system as at 31 March 2022. This includes both void and unbilled properties and is calculated as a sum of the total properties in lines 4.23, 4R.24 and 4R.25.
4R.27	Total connected properties at year end	Water Unmeasured Total	000's	The total number of residential and business, unmeasured, i.e., do not have a meter measuring their water usage, properties connected to the company's water distribution system as at 31 March 2022. This includes void properties and is calculated as the sum of the total properties in lines 4R.22 and 4R.26.

		Water Measured Total	000's	The total number of residential and business, measured, i.e., those with a meter records the volume of water used and is used to bill the property its use, properties connected to the company's water distribution system as at 31 March 2022. This includes void properties and is calculated as the sum of the total properties in lines 4R.22 and 4R.26.
		Total	000's	The total number of residential and business connected to the company's water distribution system as at 31 March 2022. This included void and unbilled properties and is calculated as the sum of the total properties in lines 4R.22 and 4R.26.
4R.28	Resident population	Water	000's people	The annual average resident population served across the company's area of supply for water distribution. This includes billed households supplied with unmeasured and measured water and billed businesses supplied with unmeasured and measured water. This measure is calculated for NWL by a third-party that specialises in demographic modelling and utilises the latest publicly available datasets to do so.
		Wastewater	000's people	The annual average resident population served across the company's area of supply for wastewater services. This includes billed households supplied with wastewater services and billed businesses supplied with wastewater services. This measure is calculated for NWL by a third-party that specialises in demographic modelling and utilises the latest publicly available datasets to do so.
4R.29	Non-resident population	Wastewater	000's people	The annual average holiday and tourist population connected to the sewerage system. Do not include daily commuters or day visitors. This measure is calculated for NWL by a third-party that specialises in demographic modelling and utilises the latest publicly available datasets to do so.
4R.30	Household Population	Residential population	000's people	The household population used to derive the common performance commitment for PCC reported in 3F.4. Note: NWL does not report the "Non residential" element of this line. This is calculated by taking the 4.28 residential population (water) and removing the billed business element included in the reported number.

4R.31	Household measured population (water only)	Residential population	000's people	Measured population total used to derive the measured PCC value in 6D.18. This measure is a split of 4R.30 household population between measured and unmeasured (4R.32) household population. This is calculated using the average yearly measured water only population per resource zone and applying the resource zone average occupancy resulting in a total residential measured population per resource zone. The population per resource zone is then summed to give a total residential population.
4R.32	Household unmeasured population (water only)	Residential population	000's people	Unmeasured population total used to derive the unmeasured PCC value in 6D.19. This measure is a split of 4R.30 household population between measured (4R.31) and unmeasured household population. This is calculated as a balancing figure by taking the Household population (4R.30) and taking out all the Household measured population (4R.31).
5A.1	Water from impounding reservoirs	Input	Ml/d	Volume (measured in megalitres per day) of water delivered to water treatment works abstracted directly from impounding (gravity fed) reservoirs, including bulk supplies (raw water that is imported from a 3rd parties' network that is abstracted from an impounding reservoir and directly feeds a Water Treatment Works, i.e. it does not first go into an NWL water source). An impounding reservoir is one that has a natural catchment so is filled from the environment, i.e. water does not need to be pumped into the reservoir for it to maintain its volume of available water. Note: NWL has determined the source type of water from the last point of abstraction prior to it entering the treatment works. e.g. a river which feeds into a reservoir and from that reservoir, water is abstracted into a water treatment works, the raw water delivered from this setup would be categorised as water from a reservoir as it is the final point of abstraction prior to the water entering the treatment works. This measure includes all water from impounding reservoirs (as per the definition above) across NWL's appointed region.
5A.2	Water from pumped storage reservoirs	Input	Ml/d	Volume (measured in megalitres per day) of water delivered to water treatment works abstracted from pumped storage (i.e. not fed by gravity) reservoirs including bulk supplies (raw water that is imported from a 3rd parties' network that is abstracted from a pumped storage reservoir and directly feeds a Water Treatment Works, i.e. it does not first go into an NWL water source). A pumped storage reservoir is one that obtains the majority of its water from the water being pumped into it from another source. Note: NWL has determined the source type of water from the last point of abstraction prior to it entering the treatment works. e.g. a river which feeds into a reservoir and from that reservoir, water is abstracted into a water treatment works, the raw water delivered from this setup would be categorised as water from a reservoir as it is the final point of abstraction prior to the water entering the treatment works. This measure includes all water from pumped storage reservoirs (as per the definition above) across NWL's appointed region.

5A.3	Water from river abstractions	Input	Ml/d	Volume (measured in megalitres per day) of water delivered to water treatment works abstracted from rivers including bulk supplies (raw water that is imported from a 3rd parties' network that is abstracted from a river and directly feeds a Water Treatment Works, i.e. it does not first go into an NWL water source). River abstraction is the process of taking water from rivers. Note: NWL has determined the source type of water from the last point of abstraction prior to it entering the treatment works. e.g. a river which feeds into a reservoir and from that reservoir, water is abstracted into a water treatment works, the raw water delivered from this setup would be categorised as water from a reservoir as it is the final point of abstraction prior to the water entering the treatment works. This measure includes all water from rivers (as per the definition above) across NWL's appointed region.
5A.4	Water from groundwater works,excluding managed aquifer recharge (MAR) water supply schemes	Input	Ml/d	Volume (measured in megalitres per day) of water delivered to water treatment works abstracted from groundwater works, excluding managed aquifer recharge (MAR) water supply schemes including bulk supplies (raw water that is imported from a 3rd parties' network that is abstracted from a groundwater works and directly feeds a Water Treatment Works, i.e. it does not first go into an NWL water source). Groundwater works abstract water that is found underground beneath the Earth's surface using boreholes. Note: NWL has determined the source type of water from the last point of abstraction prior to it entering the treatment works. e.g. a river which feeds into a reservoir and from that reservoir, water is abstracted into a water treatment works, the raw water delivered from this setup would be categorised as water from a reservoir as it is the final point of abstraction prior to the water entering the treatment works. This measure includes all water from MAR schemes (as per the definition above) across NWL's appointed region.
5A.5	Water from artificial recharge (AR) water supply schemes	Input	Ml/d	Volume (measured in megalitres per day) of water delivered to water treatment works abstracted from sources of artificial recharge (AR) water supply schemes including bulk supplies (raw water that is imported from a 3rd parties' network that is abstracted from AR schemes and directly feeds a Water Treatment Works, i.e. it does not first go into an NWL water source). Artificial recharge schemes are a subset of managed aquifer recharge (MAR) schemes, which functions by recharging an aquifer before or after abstraction. Artificial recharge (AR) is the process of injecting (or recharging) water into the ground in a controlled way, by means of special recharge walls. The water abstracted is not necessarily the water that has been recharged, so the water can be of natural quality and require more complex treatment. This excludes aquifer storage and recovery (ASR) water supply schemes. These are a subset of managed aquifer recharge (MAR) schemes, which functions by recharging an aquifer, storing that water and maintaining its quality. Note: NWL has determined the source type of water from the last point of abstraction prior to it entering the treatment works. e.g. a river which feeds into a reservoir and from that reservoir, water is abstracted into a water treatment works, the raw water delivered from this setup would be categorised as water from a reservoir as it is the final point of abstraction prior to the water entering the treatment works. This measure includes all water from AR schemes (as per the definition above) across NWL's appointed region.

5A.6	Water from aquifer storage and recovery (ASR) water supply schemes	Input	Ml/d	Volume (measured in megalitres per day) of water delivered to water treatment works abstracted from aquifer storage and recovery (ASR) water supply schemes including bulk supplies (raw water that is imported from a 3rd parties' network that is abstracted from an ASR water supply scheme and directly feeds a Water Treatment Works, i.e. it does not first go into an NWL water source). Aquifer storage and recovery (ASR) schemes are a subset of managed aquifer recharge (MAR) schemes, which functions by recharging an aquifer, storing that water and maintaining its quality. Aquifer storage and recovery (ASR) is the direct injection of surface water supplies such as potable (drinkable) water, reclaimed water, or river into an aquifer for later recovery and use. The aim is to enable simple and less costly treatment of the re-abstracted water, and that the water recharged is predominantly the water that is re- abstracted. This excludes artificial recharge (AR) water supply schemes. This excludes artificial recharge (AR) water supply schemes. These are a subset of managed aquifer recharge (MAR) schemes, which functions by recharging an aquifer before or after abstraction. Note: NWL has determined the source type of water from the last point of abstraction prior to it entering the treatment works. e.g. a river which feeds into a reservoir and from that reservoir, water is abstracted into a water treatment works, the raw water delivered from this setup would be categorised as water from a reservoir as it is the final point of abstraction prior to the water entering the treatment works. This measure includes all water from ASR schemes (as per the definition above) across NWL's appointed region.
5A.7	Water from saline abstractions	Input	Ml/d	Volume (measured in megalitres per day) of water delivered to water treatment works abstracted from saline abstraction schemes including bulk supplies (raw water that is imported from a 3rd parties' network that is abstracted from a saline abstraction and directly feeds a Water Treatment Works, i.e. it does not first go into an NWL water source). Saline abstraction is the process of abstracting salt water and making fit to enter the distribution system. Note: NWL has determined the source type of water from the last point of abstraction prior to it entering the treatment works. e.g. a river which feeds into a reservoir and from that reservoir, water is abstracted into a water treatment works, the raw water delivered from this setup would be categorised as water from a reservoir as it is the final point of abstraction prior to the water entering the treatment works. This measure includes all water from saline abstraction schemes (as per the definition above) across NWL's appointed region.
5A.8	Water from water reuse schemes	Input	Ml/d	Volume (measured in megalitres per day) of water delivered to water treatment works abstracted from water reuse schemes. Water reuse schemes are where effluent discharged from a Sewage Treatment Works (STW) is not returned to the environment but goes directly to a Water Treatment Works (WTW) for processing. Note: NWL has determined the source type of water from the last point of abstraction prior to it entering the treatment works. e.g. a river which feeds into a reservoir and from that reservoir, water is abstracted into a water treatment works, the raw water delivered from this setup would be categorised as water from a reservoir as it is the final point of abstraction prior to the water entering the treatment works. This measure includes all water from water reuse schemes (as per the definition above) across NWL's appointed region.
5A.9	Number of impounding reservoirs	Input	Number	Number of sources of impounding (gravity fed) reservoirs. An impounding reservoir is one that has is natural catchment so is filled from the environment, i.e. water does not need to be pumped into the reservoir for it to maintain its volume of available water. A source is defined as an independent raw water supply that directly supplies a treatment works, such as impounding reservoirs, river abstractions and groundwater work. Standby (emergency supplies) or mothballed (reservoirs from which no water could be abstracted immediately without remedial work being undertaken) sources from which no water has been obtained in the year should not be included. Note: NWL only report reservoirs that directly supply a treatment works with water and do not include those from which water is abstracted and fed into another water resource asset for the water to be abstracted from to supply a treatment works. For example, a reservoir which feeds into a river and from that river water is abstracted into a Water Treatment Works, the upstream reservoir would be excluded from the reporting. This measure includes all impounding reservoirs (as per the definition above) across NWL's appointed region.

5A.10	Number of pumped storage reservoirs	Input	Number	Number of sources of pumped storage (i.e. not fed by gravity) reservoirs. A pumped storage reservoir is one that obtains the majority of its water from it being pumped into the reservoir from a river, i.e. it does not receive the majority of its water as natural catchment from the environment. Pumped storage reservoirs will receive an element of gravity flow. The source should be allocated according to the type of flow that delivers the larger part of the reservoir's input. For example, if 60% of the reservoir's volume is pumped river water the source should be counted as a pumped storage source. A source is defined as an independent raw water supply that directly supplies a treatment works, such as impounding reservoirs, river abstractions and groundwater works. Standby (emergency supplies) or mothballed (reservoirs from which no water could be abstracted immediately without remedial work being undertaken) sources from which no water has been obtained in the year should not be included. Note: NWL only report reservoirs that directly supply a treatment works with water and do not include those from which water is abstracted and fed into another water resource asset for the water to be abstracted from to supply a treatment works. For example, a reservoir which feeds into a river and from that river water is abstracted into a Water Treatment Works, the upstream reservoir would be excluded from the reporting. This measure includes all pumped storage reservoirs (as per the definition above) across NWL's appointed region.
5A.11	Number of river abstractions	Input	Number	Number of sources of river abstractions. River abstraction is the process of removing water from rivers. A source is defined as an independent raw water supply that directly supplies a treatment works, such as impounding reservoirs, river abstractions and groundwater works. Standby (emergency supplies) or mothballed (rivers from which no water could be abstracted immediately without remedial work being undertaken) sources from which no water has been obtained in the year should not be included. Note: NWL only report rivers that directly supply a treatment works with water and do not include those from which water is abstracted and fed into another water resource asset for the water to be abstracted from to supply a treatment works. For example, a river which feeds into a reservoir and from that reservoir water is abstracted into a Water Treatment Works, the upstream river would be excluded from the reporting. This measure includes all river abstractions (as per the definition above) across NWL's appointed region.
5A.12	Number of groundwater works excluding managed aquifer recharge (MAR) water supply schemes	Input	Number	Number of sources of groundwater works, excluding managed aquifer recharge (MAR) water supply schemes. Groundwater works abstract water that is found underground beneath the Earth's surface using boreholes. A source is defined as an independent raw water supply that directly supplies a treatment works, such as impounding reservoirs, river abstractions and groundwater works. Standby (emergency supplies) or mothballed (MAR schemes from which no water could be abstracted immediately without remedial work being undertaken) sources from which no water has been obtained in the year should not be included. Managed aquifer recharge (MAR) describes the intentional recharge (and storage) of water into an aquifer for subsequent recovery or for environmental benefits. This measure includes all MAR schemes (as per the definition above) across NWL's appointed region.
5A.13	Number of artificial recharge (AR) water supply schemes	Input	Number	Number of sources of artificial recharge (AR) water supply schemes. Artificial recharge schemes are a subset of managed aquifer recharge (MAR) schemes, which functions by recharging an aquifer before or after abstraction. Artificial recharge (AR) is the process of injecting (or recharging) water into the ground in a controlled way, by means of special recharge walls. The water abstracted is not necessarily the water that has been recharged, so the water can be of natural quality and require more complex treatment. This excludes aquifer storage and recovery (ASR) water supply schemes. These are a subset of managed aquifer recharge (MAR) schemes, which functions by recharging an aquifer, storing that water and maintaining its quality. A source is defined as an independent raw water supply that directly supplies a treatment works, such as impounding reservoirs, river abstractions and groundwater works. Standby (emergency supplies) or mothballed (AR schemes from which no water could be abstracted immediately without remedial work being undertaken) sources from which no water has been obtained in the year should not be included. This measure includes all AR schemes (as per the definition above) across NWL's appointed region.
5A.14	Number of aquifer storage and recovery (ASR) water supply schemes	Input	Number	Number of sources of aquifer storage and recovery (ASR) water supply schemes. Aquifer storage and recovery (ASR) schemes are a subset of managed aquifer recharge (MAR) schemes, which functions by recharging an aquifer, storing that water and maintaining its quality. Aquifer storage and recovery (ASR) is the direct injection of surface water supplies such as potable (drinkable) water, reclaimed water, or river into an aquifer for later recovery and use. The aim is to enable simple and less costly treatment of the re-abstracted water, and that the water recharged is predominantly the water that is re- abstracted. This excludes artificial recharge (AR) water supply schemes. This excludes artificial recharge (AR) water supply schemes. These are a subset of managed aquifer recharge (MAR) schemes, which functions by recharging an aquifer before or after abstraction.

				A source is defined as an independent raw water supply that directly supplies a treatment works, such as impounding reservoirs, river abstractions and groundwater works. Standby (emergency supplies) or mothballed (ASR schemes from which no water could be abstracted immediately without remedial work being undertaken) sources from which no water has been obtained in the year should not be included. This measure includes all ASR schemes (as per the definition above) across NWL's appointed region.
5A.15	Number of saline abstraction schemes	Input	Number	Total number of sources of saline abstraction schemes. Saline abstraction is the process of abstracting salt water and making fit to enter the distribution system. A source is defined as an independent raw water supply that directly supplies a treatment works, such as impounding reservoirs, river abstractions and groundwater works. Standby (emergency supplies) or mothballed (saline abstraction schemes from which no water could be abstracted immediately without remedial work being undertaken) sources from which no water has been obtained in the year should not be included. This measure includes all saline abstraction schemes (as per the definition above) across NWL's appointed region.
5A.16	Number of reuse schemes	Input	Number	Total number of reuse schemes. Water reuse schemes are where effluent discharged from a Sewage Treatment Works (STW) is not returned to the environment but goes directly to a Water Treatment Works (WTW) for processing. Note: NWL do not include reuse schemes whereby the treated water from a Sewage Treatment Works is discharged into a river to increase the volume of available water in that river to be abstracted downstream by a Water Treatment Works. This would be reported as a river abstraction. This measure includes all water reuse schemes (as per the definition above) across NWL's appointed region.
5A.17	Total number of sources	Input	Number	The total number of sources operated by a company. This should equal the sum of lines 5A.9 to 5A.16 A source is defined as an independent raw water supply that directly supplies a treatment works, such as impounding reservoirs, river abstractions and groundwater works. Standby or mothballed sources from which no water has been obtained in the year should not be included.
5A.18	Total number of water reservoirs	Input	Number	All reservoirs used for holding raw water. This line shall include impounding (gravity fed) reservoirs (5A.9), pumped storage (water is pumped from a river to fill them) reservoirs (5A.10) and other reservoirs in NWL's network that do not fit into either of the two categories above but do have a natural catchment area, and/or an abstraction licence, and/or support another abstraction, and/or support downstream abstraction, and/or 15 or more days of storage (it holds enough water to meet the demands of the treatment works it services for 15 days or more). Note: NWL include in this line those reservoirs which are standby (emergency supplies) or mothballed (reservoirs from which no water could be abstracted immediately without remedial work being undertaken) sources from which no water has been obtained in the year. This line does not contain Balancing Reservoirs, reservoirs that are not sources (6A.9 and 6A.10), and do not have a natural catchment area, and/or an abstraction licence, and/or support another abstraction, and/or support downstream abstraction, and/or 15 or more days of storage, that are reported in line 6A.1 (Total number of balancing reservoirs). This measure includes all water reservoirs (as per the definition above) across NWL's appointed region.
5A.19	Total volumetric capacity of water reservoirs	Input	Ml/d	Total design/construction capacity (measured in megalitres) of all reservoirs used for holding raw water reported for 5A.18 (Total number of water reservoirs). This measure includes all water reservoirs (as per the definition above) across NWL's appointed region.
5A.20	Total number of intake and source pumping stations	Input	Number	The total number of surface water (water on the Earth's surface) intake and groundwater (water found beneath the Earth's surface) pumping stations associated with potable (drinkable), non-potable (non-drinkable) and raw water (water found in the environment that has not been treated) systems. Intake and source pumping stations abstract water directly from a source which can be an impounding reservoir, pumped storage reservoir, river or groundwater works and are included within the 'Raw water abstraction price control unit' as described by RAG 4.09 Appendix 2. For the avoidance of doubt, this is the number of sites as opposed to the number of individual pumps. Where a pumping station does not abstract directly from a source, however assists with abstraction, the this pumping station is excluded from 5A.20. Decommissioned assets have been excluded from reporting. NWL have defined a decommissioned asset as one that cannot be returned to service within six months from being identified as needed, and the asset is not awaiting planned work or identified for capital investment within the current Asset Management Period (AMP), then the site is deemed to be abandoned. This does not preclude the possibility of an asset being

				identified as required at some future date and therefore included in future regulatory return. This measure includes all intake and source pumping stations (as per the definition above) across NWL's appointed region.
5A.21	Total installed power capacity of intake and source pumping stations	Input	Kilowatts (kW)	Total capacity of all abstraction pumpsets, (duty, assist and standby irrespective of the number that may be working at any one time) associated with raw water (water found in the environment that has not been treated) abstraction. A duty pump covers daily requirements. An assist pump is one where each pump is sized for 50% of the estimated flow rate required and a standby pump is a backup pump in the event of a duty pump failing. For the avoidance of doubt, the capacity of all individual pumps at the sites reported in 5A.20 should be included.Where a pumping station does not abstract directly from a source, however assists with abstraction, the capacity of this pumping station is included within 5A.21 This measure includes all intake and source pumping stations (as per the definition above) across NWL's appointed region.
5A.23	Average pumping head – raw water abstraction	Input	Mean head per day (M.hd)	Average pumping head for the raw water abstraction business unit, the pumpsets reported in 5A.20. Average pumping head is measured as the sum of the annual mean head (defined as the average delivery pressure minus the average suction pressure when the pump is operating, or the height the water is lifted) multiplied by the total measured volume of water pumped entering the raw water abstraction price control unit, as defined in RAG 4.09, divided by the total volume of water entering the raw water abstraction price control, as defined in RAG 4.09, whether it has been pumped or gravitated (moved by gravity). This is calculated using actual pumping head rather than the rating of the pumps.
5A.25	Total number of raw water abstraction imports	Input	Number	The total number of raw water (water found in the environment that has not been treated) abstraction import points. Raw water abstraction imports are where raw water abstracted from a neighbouring water company's water source directly feeds into NWL's raw water network. Import points not used in the year but agreed with the neighbouring water company should be reported. This measure includes all raw water abstraction imports (as per the definition above) across NWL's appointed region.
5A.26	Water imported from 3rd parties' raw water abstraction systems	Input	Megalitres per day (Ml/d)	Volume (measured in megalitres per day) of raw water (water found in the environment that has not been treated) imported from 3rd parties' raw water abstraction systems reported in line 5A.25 Raw water abstraction imports are where raw water abstracted from a neighbouring water company's water source directly feeds into NWL's raw water network. This measure covers all 3rd party raw water abstraction imports across NWL's appointed region
5A.27	Total number of raw water abstraction exports	Input	Number	The total number of raw water abstraction export points. Raw water abstraction exports are where raw water is abstracted from a NWL water source and is directly fed into a neighbouring water company's raw water network. Export points not used in the year but agreed with the neighbouring water company should be reported. This measure includes all raw water abstraction exports (as per the definition above) across NWL's appointed region.
5A.28	Water exported to 3rd parties' from raw water abstraction systems	Input	Megalitres per day (Ml/d)	Volume (measured in megalitres per day) of NWL's raw water exported from NWL water abstraction systems reported in line 5A.27. Raw water abstraction exports are where raw water is abstracted from a NWL water source and is directly fed into a neighbouring water company's raw water network. This measure covers all 3rd party raw water abstraction exports across NWL's appointed region
5A.29	Water resources capacity (measured using water resources yield)	Input	Megalitres per day (Ml/d)	The company level water resources capacity, which should be the sum of all company water resource zones (WRZs) across all its licensed areas. Water resources capacity is measured as the average volume of water available from the environment (dependent on the level of service and planning period) and constrained by water resources control assets. These will be assets that provide water for raw water abstraction and includes boreholes, reservoirs (impounding and pumped storage) and river abstraction assets. Assets that sit outside of the water resources control assets boundary, for example, the water treatment capacity of the Water Treatment Works (WTW), will not influence the reporting of water resources yield. Capacity is measured in terms of water resources yield which captures the average volume of water available from the environment and constrained by water resources control assets. The abstraction asset

				capacities are fixed values regardless of the assumptions made. Therefore, water resources yield is constrained by: - the company's agreed level of service (the return period of drought resilience and frequency of restriction implementation); - the company's agreed planning period (the period over which the amount of water available is measured e.g. dry year annual average); - the baseline hydrological/hydrogeological (source) yield; - the abstraction licence availability; and - the raw water abstraction asset capacities (e.g. abstraction pumps). In simple terms, where there is one raw water source, one abstraction licence, and one abstraction asset - the water resources yield, and therefore the capacity, will be the lowest of the flow rates (volume per unit time) that can be achieved across each of those three components using the company's level of service and planning period scenario(s) (i.e. the lower of, source yield - the amount available from the environment, the limit set in the abstraction licence or the physical capacity of the asset used for abstraction). Contracted imports or exports between 3rd party water companies should be considered when calculating water resources capacity (i.e. a contract to import water from a neighbouring water company would be included in the reported water resources capacity, whereas a contract to export water to a neighbouring water company would be excluded from the reported water resources capacity
6A.1	Total number of balancing reservoirs	Input	Number	Total number of reservoirs used for holding transported raw water. Balancing reservoirs are defined as those reservoirs used to hold raw water within NWL's raw water network that do not meet the definition to be reported in line 5A.18 because they are not sources (6A.9 and 6A.10), and do not have a natural catchment area, and/or an abstraction licence, and/or support another abstraction, and/or support downstream abstraction, and/or 15 or more days of storage. They are used to hold water for a short period of time as it is transported around NWL's raw water network. This measure includes all water reuse schemes (as per the definition above) across NWL's appointed region.
6A.2	Total volumetric capacity of balancing reservoirs	Input	Megalitres (Ml)	Total design/construction capacity (measured in megalitres) of all balancing reservoirs, those reported in line 6A.1 (Total number of balancing reservoirs). This measure includes all balancing reservoirs (as per the definition above) across NWL's appointed region.
6A.3	Total number of raw water transport stations	Input	Number	Total number of raw water (water found in the environment that has not been treated) transport stations. Raw water transport stations are used to transport raw water from its abstraction source through the raw water transport network to a Water Treatment Works (WTW), a raw water storage facility, or to customers that require non-potable (non-drinkable) water (including third party water companies) and are included within the 'Raw water transport price control unit' as described by RAG 4.09 Appendix 2. For the avoidance of doubt, this is the number of sites as opposed to the number of individual pumps. Decommissioned assets have been excluded from reporting. NWL have defined a decommissioned asset as one that cannot be returned to service within six months from being identified as needed, and the asset is not awaiting planned work or identified for capital investment within the current Asset Management Period (AMP), then the site is deemed to be abandoned. This does not preclude the possibility of an asset being identified as required at some future date and therefore included in future regulatory return. This measure includes all raw water transport stations (as per the definition above) across NWL's appointed region.
6A.4	Total installed power capacity of raw water transport pumping stations	Input	Kilowatts (kW)	Total capacity of all raw water transport pumpsets, (duty, assist and standby - irrespective of the number that may be working at any one time) associated with raw water transport. A duty pump covers daily requirements. An assist pump is one where each pump is sized for 50% of the estimated flow rate required and a standby pump is a backup pump in the event of duty pump failing. For the avoidance of doubt, the capacity of all individual pumps at the sites reported in 6A.3 should be included. This measure includes all raw water transport stations (as per the definition above) across NWL's appointed region.

6A.6	Average pumping head ~ raw water transport	Input	Mean head per day (M.hd)	Average pumping head for the raw water transport business unit, the pumpsets reported in 6A.3. Average pumping head is measured as the sum of the annual mean head (defined as the average delivery pressure minus the average suction pressure when the pump is operating, or the height the water is lifted) multiplied by the total measured volume of water pumped entering the raw water transport price control unit, as defined in RAG 4.09, divided by the total volume of water entering the raw water transport price control unit, as defined in RAG 4.09, whether it has been pumped or gravitated (moved by gravity). This is calculated using actual pumping head rather than the rating of the pumps.
6A.8	Total number of raw water transport imports	Input	Number	The total number of raw water (water found in the environment that has not been treated) transport import points. Raw water transport imports are where raw water from a neighbouring water company's raw water transport network (but not directly from a source) feeds into NWL's raw water network. Note: this differs from raw water abstraction imports (5A.25) where raw water abstracted from a neighbouring water company's water source directly feeds into NWL's raw water network, whereas transport imports are received from a neighbouring water company's raw water network rather than directly from a source. Import points not used in the year but agreed with the neighbouring water company should be reported. This measure includes all raw water transport imports (as per the definition above) across NWL's appointed region.
6A.9	Water imported from 3rd parties' raw water transport systems	Input	Megalitres per day (Ml/d)	Volume (measured in megalitres per day) of raw water (water found in the environment that has not been treated) imported from 3rd parties' raw water transport systems reported in line 6A.8. Raw water transport imports are where raw water from a neighbouring water company's raw water transport network feeds into NWL's raw water network. This measure covers all 3rd party raw water transport imports across NWL's appointed region
6A.10	Total number of raw water transport exports	Input	Number	Total number of raw water (water found in the environment that has not been treated) transport export points. Raw water transport exports are where NWL exports water from its raw water network (but not directly from a source) into a neighbouring water company's raw water transport network. Note: this differs from raw water abstraction exports (5A.27) where raw water is abstracted from a NWL water source and is directly fed into a neighbouring water company's raw water network, whereas transport exports are where raw water is exported to a neighbouring water company's raw water network but not directly from the NWL source. Export points not used in the year but agreed with the neighbouring water company should be reported. This measure includes all raw water transport exports (as per the definition above) across NWL's appointed region.
6A.11	Water exported to 3rd parties' raw water transport systems	Input	Megalitres per day (Ml/d)	Volume (measured in megalitres per day) of raw water (water found in the environment that has not been treated) exports to 3rd parties' raw water transport systems reported in line 6A.10. Raw water transport exports are where NWL exports water from its raw water network (but not directly from a source) into a neighbouring water company's raw water transport network. This measure covers all 3rd party raw water transport exports across NWL's appointed region.
6A.29	Number of treatment works requiring remedial action because of raw water deterioration	Input	Number	The number of Water Treatment Works that require remedial action because of raw water deterioration. All works should be supported by the drinking water inspectorate (DWI) or in the case of planned activity be proposed to the DWI.
6A.30	Zonal population receiving water treated with orthophosphate	Input	'000s	The total population of NWL's customers that receive drinking water that has been treated with orthophosphate during the treatment process.

6A.31	Average pumping head – water treatment	Input	Mean head per day (M.hd)	Average pumping head for the water treatment business unit (water received from the raw water transport network and treated to make potable (drinkable) water. Average pumping head is measured as the sum of the annual mean head (defined as the average delivery pressure minus the average suction pressure when the pump is operating, or the height the water is lifted) multiplied by the total measured volume of water pumped entering the water treatment transport price control unit, as defined in RAG 4.09, divided by the total volume of water entering the water treatment price control unit, as defined in RAG 4.09, whether it has been pumped or gravitated (moved by gravity). This is calculated using actual pumping head rather than the rating of the pumps.
6A.33	Total number of water treatment imports	Input	Number	The total number of water treatment import points. Water treatment imports are where raw water from a neighbouring water company feeds directly into a NWL Water Treatment Works rather than into NWL's raw water network. Import points not used in the year but agreed with the neighbouring water company should be reported. This measure includes all raw water treatment imports (as per the definition above) across NWL's appointed region.
6A.34	Water imported from 3rd parties' Water Treatment Works	Input	Megalitres per day (Ml/d)	Volume (measured in megalitres per day) of raw water (water found in the environment that has not been treated) imported from 3rd parties' Water Treatment Works reported in line 6A.33. Water treatment imports are where raw water from a neighbouring water company feeds directly into a NWL Water Treatment Works rather than into NWL's raw water network. This measure covers all 3rd party Water Treatment Works imports across NWL's appointed region.
6A.35	Total number of water treatment exports	Input	Number	The total number of water treatment export points. Water treatment exports are where raw water abstracted by NWL is directly fed into a neighbouring water company's Water Treatment Works rather than into the neighbouring water company's raw water network. Export points not used in the year but agreed with the neighbouring water company should be reported. This measure includes all raw water treatment exports (as per the definition above) across NWL's appointed region.
6A.36	Water exported to 3rd parties' Water Treatment Works	Input	Megalitres per day (Ml/d)	Volume (measured in megalitres per day) of raw water (water found in the environment that has not been treated) exported to 3rd parties' Water Treatment Works reported in line 6A.35. Water treatment exports are where raw water abstracted by NWL is directly fed into a neighbouring water company's Water Treatment Works rather than into the neighbouring water company's raw water network. This measure includes all raw water treatment exports (as per the definition above) across NWL's appointed region.
6B.1	Total installed power capacity of potable water pumping station	Input	Kilowatts (kW)	Total capacity of all potable (drinking) water pumpsets, (duty, assist and standby - irrespective of the number that may be working at any one time) associated with treated water distribution. A duty pump covers daily requirements. An assist pump is one where each pump is sized for 50% of the estimated flow rate required and a standby pump is a backup pump in the event of duty pump failing. For the avoidance of doubt, the capacity of all individual pumps at the sites reported in 6B.20 should be included. This measure includes all potable water pumping station (as per the definition above) across NWL's appointed region.
6B.2	Total volumetric capacity of service reservoirs	Input	Megalitres (Ml)	The installed design/constructed capacity of treated (drinkable) water service reservoirs (reservoirs used to store treated water prior to being delivered to customers' properties) within the water supply system including treated water reservoirs at Water Treatment Works and any secondary disinfection plant on reservoir sites. Include break pressure tanks. Exclude decommissioned assets. For the avoidance of doubt, the capacity of all individual compartments at the service reservoirs reported in 6B.25 should be included. This measure includes all service reservoirs (as per the definition above) across NWL's appointed region.

6B.3	Total volumetric capacity of water towers	Input	Megalitres (Ml)	The installed design/constructed capacity of treated (drinkable) water storage towers (towers used to store treated water prior to being delivered to customers' properties) within the water supply system. Exclude decommissioned assets. For the avoidance of doubt, the capacity of all water towers reported in 6B.26 should be included. This measure includes all water towers (as per the definition above) across NWL's appointed region.
6B.4	Distribution input	Input	Megalitres per day (Ml/d)	Distribution input is the average (mean) volume of potable (drinkable) water entering the distribution system. It is calculated as follows: DI = Works output + Imports – Exports. Works output is the volume of treated water that enters the company's potable water distribution system from treatment works. Imports refers to any treated water imported from another nearby water company. Exports refers to any treated water exported to a nearby water company. Distribution Input is reported as a post-Maximum Likelihood Estimation (MLE) weighted average Ml/day over the year. The MLE technique is used to distribute the volume of any unaccounted-for water in the water balance (distribution input compared to water consumption + leakage) calculation. Unaccounted for water occurs when the distribution input and the sum of the components of the water balance do not reconcile. To reconcile the water balance, the MLE method is used to distribute the unaccounted-for water according to the uncertainty in the components of the water balance through the use of confidence intervals. This measure covers all distribution input generated across NWL's appointed region.
6B.5	Water delivered (non-potable)	Input	Megalitres per day (Ml/d)	Average (mean) volume non-potable (non-drinkable) water supplied as part of the appointed business. Include all non-potable water charged at standard and non-standard rates. This measure includes all water delivered (non-potable) (as per the definition above) across NWL's appointed region.
6B.6	Water delivered (potable)	Input	Megalitres per day (Ml/d)	Average (mean) volume potable (drinkable) water supplied as part of the appointed business. This includes: a) the average volume of water delivered for billed measured (metered) residential and businesses; b) the estimated volume of water delivered for billed unmeasured (unmetered) residential and businesses. This is estimated through monitoring consumption at a sample of properties to calculate per capita consumption and multiplying this by the population of unmeasured properties to identify total water delivered to billed unmeasured properties; c) supply pipe leakage (water leaked from customer owned pipes); d) meter under registration for water delivered which is measured (a measure of the volume of water used that is not reported by meters); e) unbilled water taken legally for legitimate purposes (public supplies for which no charge is made e.g. some sewer flushing etc., uncharged church supplies, fire training and fire-fighting supplies where these are not charged irrespective of whether or not they are metered). This excludes volumes associated with leakage allowance rebates to metered customers; and f) water taken illegally providing it is based on actual occurrences using sound and auditable identification and recording procedures (if not this should be treated as distribution losses and excluded from this line). Water delivered (potable) is reported as a post-Maximum Likelihood Estimation (MLE) weighted average Ml/day over the year. The MLE technique is used to distribute the volume of any unaccounted-for water in the water balance (distribution input compared to water consumption + leakage) calculation. Unaccounted for water occurs when the distribution input and the sum of the components of the water balance do not reconcile. To reconcile the water balance, the MLE method is used to distribute the unaccounted-for water according to the uncertainty in the components of the water balance through the use of confidence intervals. This measure includes all water delivered (potable) (as per the definition above) across NWL's appointed region.
6B.7	Water delivered (billed measured residential)	Input	Megalitres per day (Ml/d)	Average (mean) volume of water delivered to residential properties which is measured (metered). This is to include supply pipe leakage (any loss of water from the underground supply pipe) and meter under-registration (where meters fail to record all usage). Additional meters fitted to measured residential properties for ancillary supplies (e.g. external hosepipes) which are non-commercial are to be included, as should any fitted to unmeasured (unmetered) residential properties if this is how revenue is allocated. Exclude miscellaneous use (Distribution system operational use, water taken legally unbilled and water taken illegally unbilled).

				Water delivered (billed measured residential) is reported as a post-Maximum Likelihood Estimation (MLE) weighted average Ml/day over the year. The MLE technique is used to distribute the volume of any unaccounted-for water in the water balance (distribution input compared to water consumption + leakage) calculation. Unaccounted for water occurs when the distribution input and the sum of the components of the water balance do not reconcile. To reconcile the water balance, the MLE method is used to distribute the unaccounted-for water according to the uncertainty in the components of the water balance through the use of confidence intervals. This measure includes all water delivered (billed residential properties) (as per the definition above) across NWL's appointed region.
6B.8	Water delivered (billed measured business)	Input	Megalitres per day (Ml/d)	Average (mean) volume of water delivered to businesses which is measured (metered). This is to include supply pipe leakage (any loss of water from customer owned pipes) and meter under-registration (a measure of the volume of water used that is not reported by meters). Additional meters fitted to measured businesses for ancillary supplies (e.g. external hosepipes) which are non-commercial are to be included, as should any fitted to unmeasured (unmetered) businesses if this is how revenue is allocated. Exclude miscellaneous use (Distribution system operational use, water taken legally unbilled and water taken illegally unbilled). Water delivered (billed measured business) is reported as a post-Maximum Likelihood Estimation (MLE) weighted average Ml/day over the year. The MLE technique is used to distribute the volume of any unaccounted-for water in the water balance (distribution input compared to water consumption + leakage) calculation. Unaccounted for water occurs when the distribution input and the sum of the components of the water balance do not reconcile. To reconcile the water balance, the MLE method is used to distribute the unaccounted-for water according to the uncertainty in the components of the water balance through the use of confidence intervals. This measure includes all water delivered (billed measured businesses) (as per the definition above) across NWL's appointed region.
6B.9	Total annual leakage	Input	Megalitres per day (Ml/d)	This measure is annual average leakage and expressed in megalitres per day (Ml/d). It is reported for all NWL's appointed business so includes both the North East region and Essex & Suffolk region where it supplies water treated water to its customers. Annual average leakage measures the volume of water that is lost across the water distribution network when delivering it from Water Treatment Works to customer properties and is defined as the sum of distribution system leakage, including customer supply pipe leakage, plus service reservoir losses and trunk mains leakage measured in megalitres per day (Ml/d). It does not include internal plumbing losses (leaks that occur on the customer side of their stop tap). Distribution system leakage is calculated by establishing the baseline leakage through minimum night flows. Minimum night flows are measured at the District Meter Area ('DMA') level as a minimum flow during the fixed hour period (3am to 4am) when consumption is expected to be at its lowest, and therefore any residual flow after Legitimate Night Use ('LNU') is assumed to be leakage. Minimum Night Flow Leakage is calculated as follows: DMA night flow – (LNU x Hour to Day Factor) ▪ DMA Night flow is recorded during the fixed period of 3-4 am and measured using DMA "in" and "out" flow meters . ▪ LNU is an average allowance per property based on per capita consumption data and calculated for different property types (measured, unmeasured, household and non-household). The LNU rate is multiplied by the number of properties of the corresponding type within each DMA to derive a litres per hour value to deduct from night flow. ▪ The Hour to Day Factor is applied to account for reduced flow as a result of reducing water pressure within DMAs during night time. The pressure is reduced to protect the distribution area from bursts as a result of lower demand during the night. It is calculated as average daily pressure divided by night pressure and multiplied by 24 hours. Night pressure is calculated as average for the period of 3am to 4am; day pressure - average for the whole 24- hour period. Customer supply pipe losses are defined as leakage from customers' pipes between the highway boundary and the customer's stop tap. To estimate, NWL have analysed reported leaks for different property types (measured, unmeasured, household and non-household), and monitored a sample of properties to calculate the average supply pipe leakage, which is multiplied by the number of properties of each type to determine total supply pipe leakage. Trunk mains are defined as the length of mains between from the start of the distribution system and the flow monitoring zones. Transfer mains leakage is estimated based on the length of main, multiplied by the assessed leakage rate per kilometre of main. Service reservoir losses have been estimated by measuring the change in depth of reservoir levels for a sample period over a period of time to calculate the volume of water lost over that period. Annual average leakage is reported as a post-Maximum Likelihood Estimation (MLE) weighted average Ml/day over the year. The MLE technique is used to distribute the volume of any unaccounted-for water in the water balance (distribution input compared to water consumption + leakage) calculation. Unaccounted for water occurs when the distribution input and the sum of the components of the water balance do not reconcile. To reconcile the water balance, the MLE method is used to distribute the unaccounted-for water according to the uncertainty in the components of the water balance through the use of confidence intervals.

				The total level of leakage is defined in the final reporting guidance for PR19 – Leakage, published on 27 March 2018: Reporting guidance – Leakage1
6B.10	Distribution losses	Input	Megalitres per day (Ml/d)	Distribution losses represent the losses on the company's potable (drinkable) water distribution system and so excludes supply pipe leakage (any loss of water from customer owned pipes). This is calculated as 6B.9 (Total leakage) – supply pipe losses. Customer supply pipe losses are defined as leakage from customers' pipes between the highway boundary and the customer's stop tap. To estimate, NWL have analysed reported leaks for different property types (measured, unmeasured, household and non-household), and monitored a sample of properties to calculate the average supply pipe leakage, which is multiplied by the number of properties of each type to determine total supply pipe leakage. Distribution losses is reported as a post-Maximum Likelihood Estimation (MLE) weighted average Ml/day over the year. The MLE technique is used to distribute the volume of any unaccounted-for water in the water balance (distribution input compared to water consumption + leakage) calculation. Unaccounted for water occurs when the distribution input and the sum of the components of the water balance do not reconcile. To reconcile the water balance, the MLE method is used to distribute the unaccounted-for water according to the uncertainty in the components of the water balance through the use of confidence intervals. This measure includes all distribution losses (as per the definition above) across NWL's appointed region.
6B.11	Water taken unbilled	Input	Megalitres per day (Ml/d)	Average (mean) water taken unbilled (whether legally or illegally). This includes water used by the company for mains tests, flushing, washouts, running to waste, or incurred through burst mains or other leakage should be excluded. Unbilled water taken legally is water taken for legitimate purposes (public supplies for which no charge is made e.g. some sewer flushing etc., uncharged church supplies, fire training and fire-fighting supplies where these are not charged irrespective of whether or not they are metered) but not billed. This excludes volumes associated with leakage allowance rebates to metered customers. Water taken illegally is water that has not legally been obtained from the treated water distribution system. It should be included providing it is based on actual occurrences using sound and auditable identification and recording procedures (if not this should be treated as distribution losses and excluded from this line). These are calculated through either actual measures of the volume of water taken unbilled, and through studies conducted by NWL to estimate the volume of water taken unbilled through various activities. Water taken unbilled is reported as a post-Maximum Likelihood Estimation (MLE) weighted average Ml/day over the year. The MLE technique is used to distribute the volume of any unaccounted-for water in the water balance (distribution input compared to water consumption + leakage) calculation. Unaccounted for water occurs when the distribution input and the sum of the components of the water balance do not reconcile. To reconcile the water balance, the MLE method is used to distribute the unaccounted-for water according to the uncertainty in the components of the water balance through the use of confidence intervals. This measure includes all water taken unbilled (as per the definition above) across NWL's appointed region.
6B.12	Proportion of distribution input derived from impounding reservoirs	Input	Number	The proportion of potable (drinkable) water that entered the distribution system (distribution input) derived from impounding (gravity fed) reservoirs, including bulk supply. An impounding reservoir is one that has a natural catchment so is filled from the environment, i.e. water does not need to be pumped into the reservoir for it maintain its volume of available water. A bulk supply is the transfer of raw water from another water company's network into NWL's network such that NWL can treat this water prior to it entering its water distribution network. Bulk supplies should be allocated as per the nature of the source from which they are received by NWL, e.g. when water is transferred to NWL from an impounding reservoir from another water company through a bulk supply arrangement, then the volume of distribution input obtained from that bulk should be allocated to "Proportion of distribution input derived from impounding reservoirs". Note: NWL has determined the source type of distribution input from the last point of abstraction prior to it entering the treatment works. e.g. a river which feeds into a reservoir and from that reservoir, water is abstracted into a Water Treatment Works, the distribution input derived from this setup would be categorised as from a reservoir as it is the final point of abstraction prior to the water entering the treatment works. This measure includes all distribution input that is derived from impounding reservoirs (as per the definition above) across NWL's appointed region. The summation of lines 6B.12 to 6B.19 should total 1.000
6B.13	Proportion of distribution input derived from pumped storage reservoirs	Input	Number	The proportion of potable (drinkable) water that entered the distribution system (distribution input) derived from pumped storage reservoirs including bulk supply. A pumped storage reservoir is one that obtains the majority of its water from it being pumped into the reservoir from a river, i.e. it does not receive the majority of its water as natural catchment from the environment. Pumped storage reservoirs received an element of gravity flow. If this flow makes a material contribution (>20%) to the volume of the reservoir the distribution input from this source should be allocated proportionally between the two reservoir types.

				A bulk supply is the transfer of raw water from another water company's network into NWL's network such that NWL can treat this water prior to it entering its water distribution network. Bulk supplies should be allocated as per the nature of the source from which they are received by NWL, e.g. when water is transferred to NWL from an impounding reservoir from another water company through a bulk supply arrangement, then the volume of distribution input obtained from that bulk should be allocated to "Proportion of distribution input derived from impounding reservoirs". Note: NWL has determined the source type of distribution input from the last point of abstraction prior to it entering the treatment works. e.g. a river which feeds into a reservoir and from that reservoir, water is abstracted into a Water Treatment Works, the distribution input derived from this setup would be categorised as from a reservoir as it is the final point of abstraction prior to the water entering the treatment works. This measure includes all distribution input that is derived from pumped storage reservoirs (as per the definition above) across NWL's appointed region. The summation of lines 6B.12 to 6B.19 should total 1.000
6B.14	Proportion of distribution input derived from river abstractions	Input	Number	The proportion of potable (drinkable) water that entered the distribution system (distribution input) derived from river abstractions including bulk supply. River abstraction is the process of abstracting water directly from a river. A bulk supply is the transfer of raw water from another water company's network into NWL's network such that NWL can treat this water prior to it entering its water distribution network. Bulk supplies should be allocated as per the nature of the source from which they are received by NWL, e.g. when water is transferred to NWL from an impounding reservoir from another water company through a bulk supply arrangement, then the volume of distribution input obtained from that bulk should be allocated to "Proportion of distribution input derived from impounding reservoirs". Note: NWL has determined the source type of distribution input from the last point of abstraction prior to it entering the treatment works. e.g. a river which feeds into a reservoir and from that reservoir, water is abstracted into a Water Treatment Works, the distribution input derived from this setup would be categorised as from a reservoir as it is the final point of abstraction prior to the water entering the treatment works. This measure includes all distribution input that is derived from rivers (as per the definition above) across NWL's appointed region. The summation of lines 6B.12 to 6B.19 should total 1.000
6B.15	Proportion of distribution input derived from groundwater works, excluding managed aquifer recharge (MAR) water supply schemes	Input	Number	Proportion of potable (drinkable) water that entered the distribution system (distribution input) derived from groundwater works including bulk supply but excluding managed aquifer recharge (MAR) water supply schemes. Groundwater is water that is found underground beneath the Earth's surface and abstracted using boreholes. Managed aquifer recharge (MAR) describes the intentional recharge (and storage) of water into an aquifer for subsequent recovery or for environmental benefits. A bulk supply is the transfer of raw water from another water company's network into NWL's network such that NWL can treat this water prior to it entering its water distribution network. Bulk supplies should be allocated as per the nature of the source from which they are received by NWL, e.g. when water is transferred to NWL from an impounding reservoir from another water company through a bulk supply arrangement, then the volume of distribution input obtained from that bulk should be allocated to "Proportion of distribution input derived from impounding reservoirs". Note: NWL has determined the source type of distribution input from the last point of abstraction prior to it entering the treatment works. e.g. a river which feeds into a reservoir and from that reservoir, water is abstracted into a Water Treatment Works, the distribution input derived from this setup would be categorised as from a reservoir as it is the final point of abstraction prior to the water entering the treatment works. This measure includes all distribution input that is derived from MAR schemes (as per the definition above) across NWL's appointed region. The summation of lines 6B.12 to 6B.19 should total 1.000

6B.16	Proportion of distribution input derived from artificial recharge (AR) water supply schemes	Input	Number	Proportion of potable (drinkable) water that entered the distribution system (distribution input) derived from artificial recharge (AR) supply schemes including bulk supply. Artificial recharge schemes are a subset of managed aquifer recharge (MAR) schemes, which functions by recharging an aquifer before or after abstraction. Artificial recharge (AR) is the process of injecting (or recharging) water into the ground in a controlled way, by means of special recharge walls. The water abstracted is not necessarily the water that has been recharged, so the water can be of natural quality and require more complex treatment. This excludes aquifer storage and recovery (ASR) water supply schemes. These are a subset of managed aquifer recharge (MAR) schemes, which functions by recharging an aquifer, storing that water and maintaining its quality. A bulk supply is the transfer of raw water from another water company's network into NWL's network such that NWL can treat this water prior to it entering its water distribution network. Bulk supplies should be allocated as per the nature of the source from which they are received by NWL, e.g. when water is transferred to NWL from an impounding reservoir from another water company through a bulk supply arrangement, then the volume of distribution input obtained from that bulk should be allocated to "Proportion of distribution input derived from impounding reservoirs". Note: NWL has determined the source type of distribution input from the last point of abstraction prior to it entering the treatment works. e.g. a river which feeds into a reservoir and from that reservoir, water is abstracted into a Water Treatment Works, the distribution input derived from this setup would be categorised as from a reservoir as it is the final point of abstraction prior to the water entering the treatment works. This measure includes all distribution input that is derived from AR schemes (as per the definition above) across NWL's appointed region. The summation of lines 6B.12 to 6B.19 should total 1.000
6B.17	Proportion of distribution input derived from aquifer storage and recovery (ASR) water supply schemes	Input	Number	Proportion of potable (drinkable) water that entered the distribution system (distribution input) derived from aquifer storage and recovery (ASR) supply schemes including bulk supply. Aquifer storage and recovery (ASR) schemes are a subset of managed aquifer recharge (MAR) schemes, which functions by recharging an aquifer, storing that water and maintaining its quality. Aquifer storage and recovery (ASR) is the direct injection of surface water supplies such as potable (drinkable) water, reclaimed water, or river into an aquifer for later recovery and use. The aim is to enable simple and less costly treatment of the re-abstracted water, and that the water recharged is predominantly the water that is re- abstracted. This excludes artificial recharge (AR) water supply schemes. This excludes artificial recharge (AR) water supply schemes. These are a subset of managed aquifer recharge (MAR) schemes, which functions by recharging an aquifer before or after abstraction. A bulk supply is the transfer of raw water from another water company's network into NWL's network such that NWL can treat this water prior to it entering its water distribution network. Bulk supplies should be allocated as per the nature of the source from which they are received by NWL, e.g. when water is transferred to NWL from an impounding reservoir from another water company through a bulk supply arrangement, then the volume of distribution input obtained from that bulk should be allocated to "Proportion of distribution input derived from impounding reservoirs". This measure includes all distribution input that is derived from ASR schemes (as per the definition above) across NWL's appointed region. The summation of lines 6B.12 to 6B.19 should total 1.000
6B.18	Proportion of distribution input derived from saline abstractions	Input	Number	Proportion of potable (drinkable) water that entered the distribution system (distribution input) derived from saline abstractions including bulk supply. Saline abstraction is the process of abstracting salt water and making fit to enter the distribution system. A bulk supply is the transfer of raw water from another water company's network into NWL's network such that NWL can treat this water prior to it entering its water distribution network. Bulk supplies should be allocated as per the nature of the source from which they are received by NWL, e.g. when water is transferred to NWL from an impounding reservoir from another water company through a bulk supply arrangement, then the volume of distribution input obtained from that bulk should be allocated to "Proportion of distribution input derived from impounding reservoirs". Note: NWL has determined the source type of distribution input from the last point of abstraction prior to it entering the treatment works. e.g. a river which feeds into a reservoir and from that reservoir, water is abstracted into a Water Treatment Works, the distribution input derived from this setup would be categorised as from a reservoir as it is the final point of abstraction prior to the water entering the treatment works. This measure includes all distribution input that is derived from saline abstraction (as per the definition above) across NWL's appointed region. The summation of lines 6B.12 to 6B.19 should total 1.000
6B.19	Proportion of distribution input derived from water reuse schemes	Input	Number	Proportion of potable (drinkable) water that entered the distribution system (distribution input) derived from reuse schemes. Water reuse schemes are where effluent discharged from a Sewage Treatment Works (STW) is not returned to the environment but goes directly to a Water Treatment Works (WTW) for processing. Note: NWL has determined the source type of distribution input from the last point of abstraction prior to it entering the treatment works. e.g. a river which feeds into a reservoir and from that reservoir, water is abstracted into a Water Treatment Works, the distribution input derived from this setup would be categorised as from a reservoir as it is the final point of abstraction prior to the water entering the treatment works.

				This measure includes all water reuse schemes (as per the definition above) across NWL's appointed region. Note: NWL do not include reuse schemes whereby the treated water from a Sewage Treatment Works is discharged into a river to increase the volume of available water in that river to be abstracted downstream by a Water Treatment Works. The summation of lines 6B.12 to 6B.19 should total 1.000
6B.20	Total number of potable water pumping stations that pump into and within the treated water distribution system	Input	Number	The total number of potable (drinking) groundwater, surface water, re-pumping and import pumping stations that pump into and within the treated (drinking) water distribution system. It should equal the sum of lines 6B.21 to 6B.24. For the avoidance of doubt, this is the number of sites as opposed to the number of individual pumps. Potable water pumping stations distribute treated (drinking) water throughout NWL's treated water distribution system to its customers. Decommissioned assets have been excluded from reporting. NWL have defined a decommissioned asset as one that cannot be returned to service within six months from being identified as needed, and the asset is not awaiting planned work or identified for capital investment within the current Asset Management Period (AMP), then the site is deemed to be abandoned. This does not preclude the possibility of an asset being identified as required at some future date and therefore included in future regulatory return. This measure includes all potable water pumping stations (as per the definition above) across NWL's appointed region.
6B.21	Number of potable water pumping stations delivering treated groundwater into the treated water distribution system	Input	Number	Total number of potable (drinking) water pumping stations delivering treated groundwater into the treated (drinking) water distribution system. Treated groundwater pumping stations distribute treated (drinking) water into NWL's treated water distribution system from a Water Treatment Works, which as raw water had been abstracted from groundwater sources, to its customers. For the avoidance of doubt, this is the number of sites as opposed to the number of individual pumps. Decommissioned assets have been excluded from reporting. NWL have defined a decommissioned asset as one that cannot be returned to service within six months from being identified as needed, and the asset is not awaiting planned work or identified for capital investment within the current Asset Management Period (AMP), then the site is deemed to be abandoned. This does not preclude the possibility of an asset being identified as required at some future date and therefore included in future regulatory return. Do not include stations where water enters the treated distribution system by gravity alone. This measure includes all treated groundwater pumping stations (as per the definition above) across NWL's appointed region.
6B.22	Number of potable water pumping stations delivering surface water into the treated water distribution system	Input	Number	Total number of potable (drinking) pumping stations delivering treated surface water into the treated (drinking) water distribution system. Treated surface water pumping stations distribute treated (drinking) water into NWL's treated distribution system from a Water Treatment Works, which as raw water had been abstracted from rivers and reservoirs, to its customers. For the avoidance of doubt, this is the number of sites as opposed to the number of individual pumps. Decommissioned assets have been excluded from reporting. NWL have defined a decommissioned asset as one that cannot be returned to service within six months from being identified as needed, and the asset is not awaiting planned work or identified for capital investment within the current Asset Management Period (AMP), then the site is deemed to be abandoned. This does not preclude the possibility of an asset being identified as required at some future date and therefore included in future regulatory return. Do not include stations where water enters the treated distribution system by gravity alone. This measure includes all treated surface water pumping stations (as per the definition above) across NWL's appointed region.
6B.23	Number of potable water pumping stations that re-pump water already within the treated water distribution system	Input	Number	Total number of potable (drinking) water pumping stations that re-pump water already within the treated water distribution system (booster pumping stations). Booster pumping stations distribute treated (drinking) water throughout NWL's treated distribution system that has already flowed from a Water Treatment Works to support its transport to NWL's customers. For the avoidance of doubt, this is the number of sites as opposed to the number of individual pumps. It does not include single property booster pumps. Decommissioned assets have been excluded from reporting. NWL have defined a decommissioned asset as one that cannot be returned to service within six months from being identified as needed, and the asset is not awaiting planned work or identified for capital investment within the current Asset Management Period (AMP), then the site is deemed to be abandoned. This does not preclude the possibility of an asset being identified as required at some future date and therefore included in future regulatory return.

				This measure includes all booster pumping stations (as per the definition above) across NWL's appointed region.
6B.24	Number of potable water pumping stations that pump water imported from a 3rd party supply into the treated water distribution system	Input	Number	Total number of potable (drinking) water pumping stations that pump water treated (drinking) water imported from a neighbouring water company into NWL's treated water distribution network. 3rd party supply import pumping stations distribute treated (drinking) water into NWL's treated distribution system from a neighbouring water company to its customers. For the avoidance of doubt, this is the number of sites as opposed to the number of individual pumps. Decommissioned assets have been excluded from reporting. NWL have defined a decommissioned asset as one that cannot be returned to service within six months from being identified as needed, and the asset is not awaiting planned work or identified for capital investment within the current Asset Management Period (AMP), then the site is deemed to be abandoned. This does not preclude the possibility of an asset being identified as required at some future date and therefore included in future regulatory return. Do not include stations where water enters the treated distribution system by gravity alone. This measure includes all 3rd party import pumping stations (as per the definition above) across NWL's appointed region.
6B.25	Total number of service reservoirs	Input	Number	The number of treated water service reservoirs (reservoirs used to store treated water prior to being delivered to customers' properties) within the water supply system including treated water reservoirs at water treatment works and any secondary disinfection plant on reservoir sites. Include break pressure tanks. Exclude decommissioned assets. A single structure divided into separate cells counts as one reservoir. NWL have defined a decommissioned asset as one that cannot be returned to service within six months from being identified as needed, and the asset is not awaiting planned work or identified for capital investment within the current Asset Management Period (AMP), then the site is deemed to be abandoned. This does not preclude the possibility of an asset being identified as required at some future date and therefore included in future regulatory return. This measure includes all service reservoirs (as per the definition above) across NWL's appointed region.
6B.26	Number of water towers	Input	Number	The number of treated (drinkable) water service towers (towers used to store treated water prior to being delivered) within the water supply system. Exclude decommissioned assets. NWL have defined a decommissioned asset as one that cannot be returned to service within six months from being identified as needed, and the asset is not awaiting planned work or identified for capital investment within the current Asset Management Period (AMP), then the site is deemed to be abandoned. This does not preclude the possibility of an asset being identified as required at some future date and therefore included in future regulatory return. This measure includes all water towers (as per the definition above) across NWL's appointed region.
6B.28	Average pumping head – treated water distribution	Input	Mean head per day (M.hd)	Average pumping head for the treated water distribution business unit, the pump sets reported in 6B.20. Average pumping head is measured as the sum of the annual mean head (defined as the average delivery pressure minus the average suction pressure when the pump is operating, or the height the water is lifted) multiplied by the total measured volume of water pumped entering the treated water distribution price control unit, as defined in RAG 4.09, divided by the total volume of water entering the treated water distribution price control unit, as defined in RAG 4.09, whether it has been pumped or gravitated (moved by gravity). This is calculated using actual pumping head rather than the rating of the pumps.
6B.29	Total number of treated water distribution imports	Input	Number	The total number of treated (drinking) water distribution import points. Treated water distribution imports are where treated (drinking) water from a neighbouring water company's network is feeds into NWL's treated water distribution network. Import points not used in the year but agreed with the neighbouring water company should be reported. This measure includes all treated water distribution import points (as per the definition above) across NWLs appointed network.
6B.30	Water imported from 3rd parties' treated water distribution systems	Input	Megalitres per day (Ml/d)	Volume (measured in megalitres per day) of treated (drinking) water imported from 3rd parties' treated water distribution networks reported in line 6B.29. Treated water distribution imports are where treated (drinking) water from a neighbouring water company's network is feeds into NWL's treated water distribution network. This measure includes all treated water distribution imports (as per the definition above) across NWLs appointed network.

6B.31	Total number of treated water distribution exports	Input	Number	The total number of treated (drinking) water distribution export points. Treated water distribution exports are where NWL exports its treated water into a neighbouring water company's treated water distribution network. Import points not used in the year but agreed with the neighbouring water company should be reported. This measure includes all treated water distribution exports (as per the definition above) across NWLs appointed network.
6B.32	Water exported to 3rd parties' treated water distribution systems	Input	Megalitres per day (Ml/d)	Volume (measured in megalitres per day) of treated (drinking) water exported to 3rd parties' treated water distribution networks reported in line 6B.31. Treated water distribution exports are where NWL exports its treated water into a neighbouring water company's treated water distribution network. This measure includes all treated water distribution exports (as per the definition above) across NWLs appointed network.
6C.22	Compliance Risk Index	Input	Number	This measure is the water quality measure for water quality compliance. The measure is expressed as a numerical compliance risk index (CRI) score and is based on the calendar year (1 January 2021 - 31 December 2021). The definition for this performance commitment is set by the Drinking Water Inspectorate (DWI), August 2018, in collaboration with the industry as per the following guidance: DWI COMPLIANCE RISK INDEX (CRI) | Ofwat A CRI score is calculated for every individual compliance failure within all water supply zones, authorised supply points, treatment works and service reservoirs. The annual CRI for the company, for the calendar year, is the sum of the individual CRI scores for every compliance failure reported during that year. The measure is based on up to 55 parameters which are determined by the DWI, where data is obtained through sampling. Each sampling failure is given a CRI score depending on sampling point: iv. Water supply zones = parameter score x assessment score x population affected (the population within the water supply zone impacted) / total company population served; v. Supply point and treatment works = parameter score x assessment score x volume supplied (m^3/day) (by that supply point / treatment works impacted) / total daily volume supplied by the company (m^3/day); or vi. Service reservoirs = parameter score x assessment score x reservoir capacity (m^3) (of the service reservoir impacted) / total service reservoir capacity of the company (m^3); where ● A water supply zone is defined as the defined as the largest area of a water company's supply system where all customers have the same supply risk. - A supply point is defined as an individual point of service on the customer premises (i.e. a customer tap); ● A treatment works is defined as a site or plant whereby processes and technologies used to remove contaminants from water are carried out. ● A service reservoir is defined as a place or structure where water from a water treatment works is stored for delivery to other service reservoirs for distribution to the consumers of a water supply district ● The parameter score is based on different criteria reflective of the nature of the parameter. This can include human health concerns, aesthetic concerns or regulatory impact concerns ● The assessment score is based on an assessment by the DWI of how well the wellbeing and interests of consumers were protected by best practice in management of compliance failures. The water quality sampling programme covers the geographical region that NWL supplies with water, as stipulated by the Drinking Water Inspectorate guidance. The sampling programme is agreed with the Drinking Water Inspectorate at the beginning of the calendar year. The compliance percentage is based on the results of the planned water quality samples only. All 55 parameters, as set out in the Water Supply Regulations 2016, are in scope. Individual CRI scores and the annual CRI score for a company are provided by the DWI, and NWL reports its performance as this annual CRI score provided by the DWI.
6C.23	Event Risk Index	Input	Number	The Event Risk Index (ERI) is a Drinking Water Inspectorate (DWI) measure of water quality reportable events. Individual events are provided a score by the DWI using the following formula: ERI = (seriousness x assessment outcome x impact) / total population served by the company; where seriousness, assessment outcome and impact are determined by the DWI through following its methodology titled "DWI EVENT RISK INDEX" dated August 2018.

				The measure is the company's performance for the calendar year and is the sum of the individual ERI scores received from the DWI throughout the reporting period. Calendar year performance 2020 will be reported. The measure covers the geographical region that NWL supplies with water, as stipulated by the Drinking Water Inspectorate guidance.
6D.17	Leakage improvements delivering benefits in 2020-25	Input	Megalitres per day (Ml/d)	Incremental leakage enhancement delivered during the reporting year to the supply-demand balance. The reported value should account for all water resource zones, and be the maximum of dry year annual average or dry year critical period benefits. It is calculated as the difference from the previous years 'Total annual leakage' figure reported in 6B.9 the current years' 'Total annual leakage' figure reported in 6B.9. Note that because benefits are recorded in this line a reduction in leakage will be reported as a positive number (benefit) and an increase in leakage will be reported as a negative number (dis-benefit).
6D.18	Per capita consumption (measured customers)	Input	Litres per household per day	The current year PCC (measured customers) is calculated as: PCC = Post MLE measured consumption in 2021-22 in ML per day / annual average resident measured population served across the company's area of supply for water distribution. Where: It is reported as the annual arithmetic mean per capita consumption expressed in litres per person per day (l/p/d). The measure uses post MLE (maximum likelihood estimation) data for measured household consumption, see 3A.3 for full details of the MLE technique applied. Measured Household consumption is the volume of water used by each measured (metered) household within NWL's water supply area, including meter under-registration (an estimate for meters not recording as much flow as there has actually been) but excluding supply pipe leakage (leakage from customers' pipes between the highway boundary and the customer's stop tap). It is calculated from NWL's billing system, including actual reads and estimated reads. Per capita consumption (PCC) is defined in the Final reporting guidance for PR19 – Per Capita Consumption, published on 27 March 2018: https://www.ofwat.gov.uk/wp-content/uploads/2018/03/Reporting-guidance-per-capita-consumption.pdf
6D.19	Per capita consumption (unmeasured customers)	Input	Litres per household per day	The current year PCC (unmeasured customers) is calculated as: PCC = Post MLE unmeasured consumption in 2021-22 in ML per day / annual average resident measured population served across the company's area of supply for water distribution. Where: It is reported as the annual arithmetic mean per capita consumption expressed in litres per person per day (l/p/d). The measure uses post MLE (maximum likelihood estimation) data for unmeasured household consumption, see 3A.3 for full details of the MLE technique applied. Unmeasured Household consumption is the volume of water used by each unmeasured household excluding supply pipe leakage. It is calculated from average unmeasured per household consumption (PHC expressed in l/household/day) multiplied by the number of unmeasured households. Per capita consumption (PCC) is defined in the Final reporting guidance for PR19 – Per Capita Consumption, published on 27 March 2018: Reporting guidance – Per Capita Consumption1
6F	WRMP1	Demand-side improvements delivering benefits in 2020-2025 (excl leakage and metering)	Md/d reduction per annum.	'Classification' of water resources management plan (WRMP) schemes delivered should be one of the following four categories • Supply-side improvements delivering benefits in 2020-2025 • Demand-side improvements delivering benefits in 2020-2025 (excl leakage and metering) • Internal interconnectors delivering benefits in 2020-2025 • Supply-demand balance improvements delivering benefits starting from 2026 NWL has reported "Demand-side improvements delivering benefits in 2020-2025" reported in Md/d reduction per annum. This is reported as the cumulative benefits delivered in each year therefore 2021-22 includes both the Md/d reduction from 2020-21 and 2021-22. Incremental demand side water efficiency enhancement benefits delivered during the reporting year to the supply demand balance as at the start of the reporting year. The reported value should account for all water

				resource zones and be the maximum of dry year annual average or dry year critical period benefits. Demand side enhancements are interventions that NWL have made that reduce the demand for water across their water supply region.
7B.1	Works name	Large STW1 – Large STW26	Text	Name of sewage treatment works. The reporting is restricted to large sewage treatment works only operated by NWL. A large sewage treatment works is defined as one that is above size band 5 (>1,500kg BOD5/day which is equivalent to a Population equivalent of >25,000). The calculation of whether a sewage treatment works meets the definition of "large" should be calculated using resident population only, i.e. it should not be calculated using the non-resident population also. Resident population is defined as all households and businesses whom NWL provide wastewater services to. Non-resident population is defined as the holiday and tourist population connected to the sewerage system (note that this does not include daily commuters or day visitors). BOD5 = '5-day Biochemical Oxygen Demand', measures the quantity of biodegradable organic matter contained in water. Note: the line is received pre-populated by Ofwat with the names of 26 treatment works. NWL has identified an additional STW, East Tanfield, which meets the definition of being "above band 5" and has manually added it to the table in the current year.. NWL has calculated whether these 27 meet the definition of "large" and identified that four of them (Belmont, Cambois ,Chester-Le-Street and Hexham) do not, however, as the table is received pre-populated they are retained within the reported cost assessment table but the remaining data lines (7B.2 – 7B.10) within the table are not completed. Ofwat also pre-populated Bishop Auckland twice in two separate columns so NWL has populated one and left the other blank so to not duplicate reported data. Consett has been renamed to Westwood however both names have been pre-populated by Ofwat , NWL has populated only Westwood so as not to duplicate the reported data. NWL has also calculated the size banding of its other 389 sewage treatment works and calculated that none of these meet the definition of large and as such do not require reporting within table 7B.
7B.2	Classification of treatment works	Large STW1 – Large STW26	Text	Classification of treatment works, according to the following Ofwat classification definitions: P = Primary treatment (Includes works whose treatment methods are restricted to primary treatment (screening, comminution, maceration, grit and detritus removal, pre-aeration and grease removal, storm tanks, plus primary sedimentation, including where assisted by the addition of chemicals e.g. Clariflow)); SAS = Secondary Activated Sludge (As primary, plus works whose treatment methods include activated sludge (including diffused air aeration, coarse bubble aeration, mechanical aeration, oxygen injection, submerged filters) and other equivalent techniques including deep shaft process, extended aeration (single, double and triple ditches) and biological aerated filters as secondary treatment); SB = Secondary Biological (As primary, plus works whose treatment methods include rotating biological contactors and biological filtration (including conventional filtration, high rate filtration, alternating double filtration and double filtration), root zone treatment (where used as a secondary treatment stage); TA1 = Tertiary A1 (Works with a secondary activated sludge process whose treatment methods also include prolonged settlement in conventional lagoons or raft lagoons, irrigation over grassland, constructed wetlands, root zone treatment (where used as a tertiary stage), drum filters, microstrainers, slow sand filters, tertiary nitrifying filters, wedge wire clarifiers or Clariflow installed in humus tanks, where used as a tertiary treatment stage); TA2 = Tertiary A2 (Works with a secondary activated sludge process whose treatment methods also include rapid-gravity sand filters, moving bed filters, pressure filters, nutrient control using physico-chemical and biological methods, disinfection, hard COD and colour removal, where used as a tertiary treatment stage); TB1 = Tertiary B1 (Works with a secondary stage biological process whose treatment methods also include prolonged settlement in conventional lagoons or raft lagoons, irrigation over grassland, constructed wetlands, root zone treatment (where used as a tertiary stage), drum filters, microstrainers, slow sand filters, tertiary nitrifying filters, wedge wire clarifiers or Clariflow installed in humus tanks, where used as a tertiary treatment stage); TB2 = Tertiary B2 (Works with a secondary biological process whose treatment methods also include rapid gravity sand filters, moving bed filters, pressure filters, nutrient control using physico-chemical and biological methods, disinfection, hard Chemical Oxygen Demand (COD) and colour removal, where used as a tertiary treatment stage). Where a works' load is split into two treatment streams, the works should be reported in this line as the higher of the two proportions. For example, a works with a split of 60% Secondary Activated Sludge and 40% Secondary Biological should be classed as Secondary Activated Sludge (SAS) in this line. This data line is completed for all 21 large sewage treatment works operated by NWL. See 7B.1 for more details.

7B.3	Population equivalent of total load received	Large STW1 – Large STW26	Number of people ('000s)	The average (mean) equivalent population of the total load received by the treatment works during the report year. Total load is comprised of both resident and non-resident population loads. This is calculated by determining the population equivalent of the total load received on the basis that the resident connected population contributes 60g BOD5 per head and each kilogram of trade effluent load contributes 120g BOD5. Resident population is defined as all households and businesses whom NWL provide wastewater services to. Non-resident population is defined as the holiday and tourist population connected to the sewerage system (note that this does not include daily commuters or day visitors). BOD5 = '5-day Biochemical Oxygen Demand', measures the quantity of biodegradable organic matter contained in water. This data line is completed for all 21 large sewage treatment works operated by NWL. See 7B.1 for more details.
7B.4	Suspended solids consent	Large STW1 – Large STW26	Milligrams per litre (mg/l)	The value of the effluent consent standard (95th percentile) with respect to suspended solids. An effluent consent is a legal document that each sewage treatment works obtains detailing the parameters in which they must work to when treating sewage. Suspended solids are a measure of the particles in the treated effluent. The figure reported must be as determined by the Environment Agency as stated in the sewage treatment works consent and not a company's own assessment of the consent standard. This data line is completed for all 21 large sewage treatment works operated by NWL. See 7B.1 for more details.
7B.5	BOD_5 consent	Large STW1 – Large STW26	Milligrams per litre (mg/l)	The value of the effluent consent standard (95th percentile) with respect to BOD5. An effluent consent is a legal document that each sewage treatment works obtains detailing the parameters in which they must work to when treating sewage. This measures the quantity of biodegradable organic matter contained in water. The figure reported must be as determined by the Environment Agency as stated in the sewage treatment works consent and not a company's own assessment of the consent standard. BOD5 = '5-day Biochemical Oxygen Demand', measures the quantity of biodegradable organic matter contained in water. This data line is completed for all 21 large sewage treatment works operated by NWL. See 7B.1 for more details.
7B.6	Ammonia consent	Large STW1 – Large STW26	Milligrams per litre (mg/l)	The value of the effluent consent standard (95th percentile) with respect to ammonia. An effluent consent is a legal document that each sewage treatment works obtains detailing the parameters in which they must work to when treating sewage. Ammonia is a colourless gas, which is a compound of nitrogen and hydrogen with the formula NH3. The figure reported must be as determined by the Environment Agency as stated in the sewage treatment works consent and not a company's own assessment of the consent standard. This data line is completed for all 21 large sewage treatment works operated by NWL. See 7B.1 for more details. Note: Not all sewage treatment works' consents contain a threshold for ammonia. Where they do not contain this threshold, the reported cell is left blank..
7B.7	Phosphorus consent	Large STW1 – Large STW26	Milligrams per litre (mg/l)	The value of the effluent consent standard with respect to phosphorus (annual mean). An effluent consent is a legal document that each sewage treatment works obtains detailing the parameters in which they must work to when treating sewage. Phosphorus is a chemical element of atomic number 15, a poisonous non-metal which is highly reactive. The figure reported must be as determined by the Environment Agency as stated in the sewage treatment works consent and not a company's own assessment of the consent standard. This data line is completed for all 21 large sewage treatment works operated by NWL. See 7B.1 for more details. Note: Not all sewage treatment works' consents contain a threshold for phosphorus. Where they do not contain this threshold, the reported cell is left blank..

7B.8	UV consent	Large STW1 – Large STW26	Milliwatts per square centimetre (mW/s/cm2)	The value of the consent process standard with respect to intensity of Ultraviolet irradiation. An effluent consent is a legal document that each sewage treatment works obtains detailing the parameters in which they must work to when treating sewage. Ultraviolet irradiation is the projection of ultraviolet light from a generator which is a by product of the water treatment process. The figure reported must be as determined by the Environment Agency as stated in the sewage treatment works consent and not a company's own assessment of the consent standard. This data line is completed for all 21 large sewage treatment works operated by NWL. See 7B.1 for more details. Note: Not all sewage treatment works' consents contain a threshold for ultraviolet irradiation. Where they do not contain this threshold, the reported cell is left blank.
7B.9	Load received by STW	Large STW1 – Large STW26	Kilograms 5-day Biological Oxygen Demand per day (kgBOD5/d)	The average daily organic load (in kgBOD5/d) received by the treatment works during the report year. For Non Urban Wastewater (UWW) sites this iscalculated on the basis of a contribution of 60g BOD5 per head of equivalent population (7B.3) per day, population being the resident (household and non-household) and non-resident (transient residents, e.g. holidaymakers) populations. For UWW sites this is calculated as the average actual BOD per day for a sample of days from throughout the year at each site site.The sample calculates the ((BOD5 concentration on sampled day (mg/l) * flow on sampled day (m3/d))/ 1000) gives the total BOD5 total (kg/d) for the sampled day. BOD5 = '5-day Biochemical Oxygen Demand", this measures the quantity of biodegradable organic matter contained in water. This data line is completed for all 21 large sewage treatment works operated by NWL. See 7B.1 for more details.
7B.10	Flow passed to full treatment	Large STW1 – Large STW26	Cubic meters per day (m3/d)	The average (mean) daily flow passed to full treatment at the treatment works during the report year. This calculates the average volume of sewage water that is received and fully treated through the sewage treatment works process per day. Typically a sewage treatment works is sized to take a 'flow to full treatment' value which is set as an industry standard at a multiple of incoming components figures which would be expected to be sufficiently higher than the peak dry weather flow of any catchment to ensure that all sewage receives adequate treatment. This data line is completed for all 21 large sewage treatment works operated by NWL. See 7B.1 for more details.
7C.3	Total pumping station capacity		Kilowatts (kW)	Total installed pumping capacity of all sewage pumping stations (including standby pumps). Include vacuum pumping stations, foul (residential and business waste), combined (highways and surface drainage), stormwater and terminal (final pump prior to treatment) and surface water pumping stations that drain directly to receiving waters (rivers etc.) pumping stations. Exclude inter-stage pumping within a sewage treatment works or sludge treatment centre, pumps delivering flows to or from off-line storm tanks, and FLIPS devices. Report capacity of all installed pumps (irrespective of the number that may be working at any one time). For the avoidance of doubt, the capacity of all individual pumps at the sites reported in 4R.4 should be included. This measure includes all sewage pumping stations (as per the definition above) across NWL's appointed region.
7C.4	Number of network pumping stations		Number	Total number of pumping stations on the sewerage (wastewater) network as at the end of the reporting year. Pumping stations transferred into the incumbent's ownership by the end of the reporting year as a result of schemes made by the Secretary of State / Welsh Ministers under the Water Industry (Schemes for Adoption of Private Sewers) Regulations 2011 should be included. For the avoidance of doubt, this is the number of sites as opposed to the number of individual pumps. This measure includes all sewage pumping stations across NWL's appointed region including: standby pumps, vacuum systems, foul (residential and business waste), combined (highways and surface drainage), stormwater and terminal (final pump prior to treatment) and surface water pumping stations that drain directly to receiving waters (rivers etc.) pumping stations.. Pumping stations delivering flows to or from off-line storm tanks, FLIPS devices, sludge pumping stations and inter-stage pumping within sewage treatment works should all be excluded.
7D.1	Load received by STWs in size band 1	Treatment categories (E – L) Treatment works	Kilograms 5-day Biological Oxygen Demand per day	Average daily pollution loads in kilograms BOD5 received by sewage treatment works of size band 1 (<= 15 kilograms BOD5 per day which is equivalent to a population of 0-250). BOD5 = '5-day Biochemical Oxygen Demand", this measures the quantity of biodegradable organic matter contained in water. This should be calculated including both resident and non-resident populations. This number is split into different components, namely: Treatment categories – The Load received by STWs in size band 1 for each sewage treatment works category type (primary, Secondary Activated Sludge (SAS), Secondary Biological (SB), Tertiary A1 (TA1),

		consents (N – AD)	(kgBOD5/d)	Tertiary A2 (TA2), Tertiary B1 (TB1) and Tertiary B2 (TB2)). For full definitions of these different treatment category type, see 7B.2. Phosphorus Consent conditions - The Load received by STWs in size band 1 with varying phosphorus consent conditions (<=0.5mg/l, >0.5 to <=1mg/l, >1mg/l and no permit). For further understanding of phosphorus consents, see 7B.7. BOD5 Consent conditions- The Load received by STWs in size band 1 with varying BOD5 consent conditions (<=7mg/l, >7 to <=10mg/l, >10 to <=20mg/l, >20mg/l, no permit). For further understanding of BOD5 consents, see 7B.5. Ammonia Consent conditions - The Load received by STWs in size band 1 with varying ammonia consent conditions (<=1mg/l, >1 to <=3mg/l, >3 to <=10mg/l, >10mg/l, no permit). For further understanding of ammonia consents, see 7B.6. The reporting includes all sewage treatments works that NWL operate that are calculated to be 'size band 1'. The calculation of whether a sewage treatment works meets the definition of 'size band 1' should be calculated using resident population only, i.e. it should not be calculated using the non-resident population also. Non-resident population is defined as the holiday and tourist population connected to the sewerage system (note that this does not include daily commuters or day visitors). Note: The band that a sewage treatment works sits in should be calculated excluding non-resident population but when calculating the load received by sewage treatment works within the band should include that from non-resident populations.
7D.2	Load received by STWs in size band 2	Treatment categories (E – L) Treatment works consents (N – AD)	Kilograms 5-day Biological Oxygen Demand per day (kgBOD5/d)	Average daily pollution loads in kilograms BOD5 received by sewage treatment works of size band 2 (15-30 kilograms BOD5 per day which is equivalent to a Population equivalent of 250-500). BOD5 = '5-day Biochemical Oxygen Demand", this measures the quantity of biodegradable organic matter contained in water. This should be calculated including both resident and non-resident populations. This number is split into different components, namely: Treatment categories – The Load received by STWs in size band 2 for each sewage treatment works category type (primary, Secondary Activated Sludge (SAS), Secondary Biological (SB), Tertiary A1 (TA1), Tertiary A2 (TA2), Tertiary B1 (TB1) and Tertiary B2 (TB2)). For full definitions of these different treatment category type, see 7B.2. Phosphorus Consent conditions - The Load received by STWs in size band 2 with varying phosphorus consent conditions (<=0.5mg/l, >0.5 to <=1mg/l, >1mg/l and no permit). For further understanding of phosphorus consents, see 7B.7. BOD5 Consent conditions- The Load received by STWs in size band 1 with varying BOD5 consent conditions (<=7mg/l, >7 to <=10mg/l, >10 to <=20mg/l, >20mg/l, no permit). For further understanding of BOD5 consents, see 7B.5. Ammonia Consent conditions - The Load received by STWs in size band 2 with varying ammonia consent conditions (<=1mg/l, >1 to <=3mg/l, >3 to <=10mg/l, >10mg/l, no permit). For further understanding of ammonia consents, see 7B.6. The reporting includes all sewage treatments works that NWL operate that are calculated to be 'size band 2'. The calculation of whether a sewage treatment works meets the definition of 'size band 2' should be calculated using resident population only, i.e. it should not be calculated using the non-resident population also. Non-resident population is defined as the holiday and tourist population connected to the sewerage system (note that this does not include daily commuters or day visitors). Note: The band that a sewage treatment works sits in should be calculated excluding non-resident population but when calculating the load received by sewage treatment works within the band should include that from non-resident populations.
7D.3	Load received by STWs in size band 3	Treatment categories (E – L) Treatment works consents (N – AD)	Kilograms 5-day Biological Oxygen Demand per day (kgBOD5/d)	Average daily pollution loads in kilograms BOD5 received by sewage treatment works of size band 3 (30-120 kilograms BOD5 per day which is equivalent to a Population equivalent of 500 - 2,000). BOD5 = '5-day Biochemical Oxygen Demand", this measures the quantity of biodegradable organic matter contained in water. This should be calculated including both resident and non-resident populations. This number is split into different components, namely: Treatment categories – The Load received by STWs in size band 3 for each sewage treatment works category type (primary, Secondary Activated Sludge (SAS), Secondary Biological (SB), Tertiary A1 (TA1), Tertiary A2 (TA2), Tertiary B1 (TB1) and Tertiary B2 (TB2)). For full definitions of these different treatment category type, see 7B.2. Phosphorus Consent conditions - The Load received by STWs in size band 3 with varying phosphorus consent conditions (<=0.5mg/l, >0.5 to <=1mg/l, >1mg/l and no permit). For further understanding of

				phosphorus consents, see 7B.7. BOD5 Consent conditions- The Load received by STWs in size band 1 with varying BOD5 consent conditions (<=7mg/l, >7 to <=10mg/l, >10 to <=20mg/l, >20mg/l, no permit). For further understanding of BOD5 consents, see 7B.5. Ammonia Consent conditions - The Load received by STWs in size band 3 with varying ammonia consent conditions (<=1mg/l, >1 to <=3mg/l, >3 to <=10mg/l, >10mg/l, no permit). For further understanding of ammonia consents, see 7B.6. The reporting includes all sewage treatments works that NWL operate that are calculated to be 'size band 3'. The calculation of whether a sewage treatment works meets the definition of 'size band 3' should be calculated using resident population only, i.e. it should not be calculated using the non-resident population also. Non-resident population is defined as the holiday and tourist population connected to the sewerage system (note that this does not include daily commuters or day visitors). Note: The band that a sewage treatment works sits in should be calculated excluding non-resident population but when calculating the load received by sewage treatment works within the band should include that from non-resident populations.
7D.4	Load received by STWs in size band 4	Treatment categories (E – L) Treatment works consents (N – AD)	Kilograms 5-day Biological Oxygen Demand per day (kgBOD5/d)	Average daily pollution loads in kilograms BOD5 received by sewage treatment works of size band 4 (120-600 kilograms BOD5 per day which is equivalent to a Population Equivalent of 2,000 -10,000). BOD5 = '5-day Biochemical Oxygen Demand", this measures the quantity of biodegradable organic matter contained in water. This should be calculated including both resident and non-resident populations. This number is split into different components, namely: Treatment categories – The Load received by STWs in size band 4 for each sewage treatment works category type (primary, Secondary Activated Sludge (SAS), Secondary Biological (SB), Tertiary A1 (TA1), Tertiary A2 (TA2), Tertiary B1 (TB1) and Tertiary B2 (TB2)). For full definitions of these different treatment category type, see 7B.2. Phosphorus Consent conditions - The Load received by STWs in size band 4 with varying phosphorus consent conditions (<=0.5mg/l, >0.5 to <=1mg/l, >1mg/l and no permit). For further understanding of phosphorus consents, see 7B.7. BOD5 Consent conditions- The Load received by STWs in size band 1 with varying BOD5 consent conditions (<=7mg/l, >7 to <=10mg/l, >10 to <=20mg/l, >20mg/l, no permit). For further understanding of BOD5 consents, see 7B.5. Ammonia Consent conditions - The Load received by STWs in size band 4 with varying ammonia consent conditions (<=1mg/l, >1 to <=3mg/l, >3 to <=10mg/l, >10mg/l, no permit). For further understanding of ammonia consents, see 7B.6. The reporting includes all sewage treatments works that NWL operate that are calculated to be 'size band 4'. The calculation of whether a sewage treatment works meets the definition of 'size band 4' should be calculated using resident population only, i.e. it should not be calculated using the non-resident population also. Non-resident population is defined as the holiday and tourist population connected to the sewerage system (note that this does not include daily commuters or day visitors). Note: The band that a sewage treatment works sits in should be calculated excluding non-resident population but when calculating the load received by sewage treatment works within the band should include that from non-resident populations.
7D.5	Load received by STWs in size band 5	Treatment categories (E – L) Treatment works consents (N – AD)	Kilograms 5-day Biological Oxygen Demand per day (kgBOD5/d)	Average daily pollution loads in kilograms BOD5 received by sewage treatment works of size band 5 (600-1,500 kilograms BOD5 per day which is equivalent to a Population equivalent of 10,000 - 25,000). BOD5 = '5-day Biochemical Oxygen Demand", this measures the quantity of biodegradable organic matter contained in water. This should be calculated including both resident and non-resident populations. This number is split into different components, namely: Treatment categories – The Load received by STWs in size band 5 for each sewage treatment works category type (primary, Secondary Activated Sludge (SAS), Secondary Biological (SB), Tertiary A1 (TA1), Tertiary A2 (TA2), Tertiary B1 (TB1) and Tertiary B2 (TB2)). For full definitions of these different treatment category type, see 7B.2. Phosphorus Consent conditions - The Load received by STWs in size band 5 with varying phosphorus consent conditions (<=0.5mg/l, >0.5 to <=1mg/l, >1mg/l and no permit). For further understanding of phosphorus consents, see 7B.7. BOD5 Consent conditions- The Load received by STWs in size band 1 with varying BOD5 consent conditions (<=7mg/l, >7 to <=10mg/l, >10 to <=20mg/l, >20mg/l, no permit). For further understanding of BOD5

				consents, see 7B.5. Ammonia Consent conditions - The Load received by STWs in size band 5 with varying ammonia consent conditions (<=1mg/l, >1 to <=3mg/l, >3 to <=10mg/l, >10mg/l, no permit). For further understanding of ammonia consents, see 7B.6. The reporting includes all sewage treatments works that NWL operate that are calculated to be 'size band 5'. The calculation of whether a sewage treatment works meets the definition of 'size band 5' should be calculated using resident population only, i.e. it should not be calculated using the non-resident population also. Non-resident population is defined as the holiday and tourist population connected to the sewerage system (note that this does not include daily commuters or day visitors). Note: The band that a sewage treatment works sits in should be calculated excluding non-resident population but when calculating the load received by sewage treatment works within the band should include that from non-resident populations.
7D.6	Load received by STWs above size band 5	Treatment categories (E – L) Treatment works consents (N – AD)	Kilograms 5-day Biological Oxygen Demand per day (kgBOD5/d)	Average daily pollution loads in kilograms BOD5 received by sewage treatment works of size band 6 (>1,500 kilograms BOD5 per day which is equivalent to a Population equivalent of >25,000). BOD5 = '5-day Biochemical Oxygen Demand", this measures the quantity of biodegradable organic matter contained in water. This should be calculated including both resident and non-resident populations. This number is split into different components, namely: Treatment categories – The Load received by STWs above size band 5 for each sewage treatment works category type (primary, Secondary Activated Sludge (SAS), Secondary Biological (SB), Tertiary A1 (TA1), Tertiary A2 (TA2), Tertiary B1 (TB1) and Tertiary B2 (TB2)). For full definitions of these different treatment category type, see 7B.2. Phosphorus Consent conditions - The Load received by STWs above size band 5 with varying phosphorus consent conditions (<=0.5mg/l, >0.5 to <=1mg/l, >1mg/l and no permit). For further understanding of phosphorus consents, see 7B.7. BOD5 Consent conditions- The Load received by STWs in size band 1 with varying BOD5 consent conditions (<=7mg/l, >7 to <=10mg/l, >10 to <=20mg/l, >20mg/l, no permit). For further understanding of BOD5 consents, see 7B.5. Ammonia Consent conditions - The Load received by STWs above size band 5 with varying ammonia consent conditions (<=1mg/l, >1 to <=3mg/l, >3 to <=10mg/l, >10mg/l, no permit). For further understanding of ammonia consents, see 7B.6 Reported values should agree with those reported in 7B.9. The reporting includes all sewage treatments works that NWL operate that are calculated to 'above size band 5'. The calculation of whether a sewage treatment works meets the definition of 'above size band 5' should be calculated using resident population only, i.e. it should not be calculated using the non-resident population also. Non-resident population is defined as the holiday and tourist population connected to the sewerage system (note that this does not include daily commuters or day visitors). Note: The band that a sewage treatment works sits in should be calculated excluding non-resident population but when calculating the load received by sewage treatment works within the band should include that from non-resident populations.
7D.7	Total load received	Treatment categories (E – L) Treatment works consents (N – AD)	Kilograms 5-day Biological Oxygen Demand per day (kgBOD5/d)	Average daily pollution loads in kilograms BOD5 received by sewage treatment works of all sizes (sizes 1 – above size 5). BOD5 = '5-day Biochemical Oxygen Demand", this measures the quantity of biodegradable organic matter contained in water. This should be calculated including both resident and non-resident populations. This number is split into different components, namely: Treatment categories – The Load received by STWs above size band 5 for each sewage treatment works category type (primary, Secondary Activated Sludge (SAS), Secondary Biological (SB), Tertiary A1 (TA1), Tertiary A2 (TA2), Tertiary B1 (TB1) and Tertiary B2 (TB2)). For full definitions of these different treatment category types, see 7B.2. Phosphorus Consent conditions - The Load received by STWs above size band 5 with varying phosphorus consent conditions (<=0.5mg/l, >0.5 to <=1mg/l, >1mg/l and no permit). For further understanding of phosphorus consents, see 7B.7. BOD5 Consent conditions- The Load received by STWs in size band 1 with varying BOD5 consent conditions (<=7mg/l, >7 to <=10mg/l, >10 to <=20mg/l, >20mg/l, no permit). For further understanding of BOD5

				consents, see 7B.5. Ammonia Consent conditions - The Load received by STWs above size band 5 with varying ammonia consent conditions (<=1mg/l, >1 to <=3mg/l, >3 to <=10mg/l, >10mg/l, no permit). For further understanding of ammonia consents, see 7B,6 This is calculated as a sum of 7D.1 (Load received by Sewage Treatment Works size band 1) to 7D.6 (Load received by Sewage Treatment Works above size band 5).
7D.8	Load received from trade effluent customers at treatment works	Total (L)	Kilograms 5-day Biological Oxygen Demand per day (kgBOD5/d)	Average (mean) daily pollution load in kilograms BOD5 received by sewage treatment works of all sizes from trade effluent customers. BOD5 stands for '5-day Biochemical Oxygen Demand". This measures the quantity of biodegradable organic matter contained in water. Each kilogram of trade effluent load contributes 120g BOD5. Trade effluent customers are business which have obtained consents to discharge material other than standard waste into the sewage network. The reporting includes all load received from trade effluent customers at all sewage treatments works that NWL operate (size band 1 – to above size band 5).
7D.9	STWs in size band 1	Treatment categories (E – L) Treatment works consents (N – AD)	number	Number of sewage treatment works of size band 1 (<= 15 kilograms BOD5 per day which is equivalent to a Population equivalent of 0-250). BOD5 = '5-day Biochemical Oxygen Demand", this measures the quantity of biodegradable organic matter contained in water. This number is split into different components, namely: Treatment categories – The total number of STWs in size band 1 for each sewage treatment works category type (primary, Secondary Activated Sludge (SAS), Secondary Biological (SB), Tertiary A1 (TA1), Tertiary A2 (TA2), Tertiary B1 (TB1) and Tertiary B2 (TB2)). For full definitions of these different treatment category type, see 7B.2. Phosphorus Consent conditions - The total number of STWs in size band 1 with varying phosphorus consent conditions (<=0.5mg/l, >0.5 to <=1mg/l, >1mg/l and no permit). For further understanding of phosphorus consents, see 7B.7. BOD5 Consent conditions- The Load received by STWs in size band 1 with varying BOD5 consent conditions (<=7mg/l, >7 to <=10mg/l, >10 to <=20mg/l, >20mg/l, no permit). For further understanding of BOD5 consents, see 7B.5. Ammonia Consent conditions - The total number of STWs in size band 1 with varying ammonia consent conditions (<=1mg/l, >1 to <=3mg/l, >3 to <=10mg/l, >10mg/l, no permit). For further understanding of ammonia consents, see 7B.6. The reporting includes all sewage treatments works that NWL operate that are calculated to be 'size band 1'. The calculation of whether a sewage treatment works meets the definition of 'size band 1' should be calculated using resident population only, i.e. it should not be calculated using the non-resident population also. Non-resident population is defined as the holiday and tourist population connected to the sewerage system (note that this does not include daily commuters or day visitors).
7D.10	STWs in size band 2	Treatment categories (E – L) Treatment works consents (N – AD)	Number	Number of sewage treatment works of size band 2 (15-30 kilograms BOD5 per day which is equivalent to a Population equivalent of 250-500). BOD5 = '5-day Biochemical Oxygen Demand", this measures the quantity of biodegradable organic matter contained in water. This number is split into different components, namely: Treatment categories – The total number of STWs in size band 1 for each sewage treatment works category type (primary, Secondary Activated Sludge (SAS), Secondary Biological (SB), Tertiary A1 (TA1), Tertiary A2 (TA2), Tertiary B1 (TB1) and Tertiary B2 (TB2)). For full definitions of these different treatment category type, see 7B.2. Phosphorus Consent conditions - The total number of STWs in size band 1 with varying phosphorus consent conditions (<=0.5mg/l, >0.5 to <=1mg/l, >1mg/l and no permit). For further understanding of phosphorus consents, see 7B.7. BOD5 Consent conditions- The Load received by STWs in size band 1 with varying BOD5 consent conditions (<=7mg/l, >7 to <=10mg/l, >10 to <=20mg/l, >20mg/l, no permit). For further understanding of BOD5 consents, see 7B.5. Ammonia Consent conditions - The total number of STWs in size band 1 with varying ammonia consent conditions (<=1mg/l, >1 to <=3mg/l, >3 to <=10mg/l, >10mg/l, no permit). For further understanding of

				ammonia consents, see 7B.6. The reporting includes all sewage treatments works that NWL operate that are calculated to be 'size band 2'. The calculation of whether a sewage treatment works meets the definition of 'size band 2' should be calculated using resident population only, i.e. it should not be calculated using the non-resident population also. Non-resident population is defined as the holiday and tourist population connected to the sewerage system (note that this does not include daily commuters or day visitors).
7D.11	STWs in size band 3	Treatment categories (E – L) Treatment works consents (N – AD)	Number	Number of sewage treatment works of size band 3 (30-120 kilograms BOD5 per day which is equivalent to a Population equivalent of 500-2,000). BOD5 = '5-day Biochemical Oxygen Demand", this measures the quantity of biodegradable organic matter contained in water. This number is split into different components, namely: Treatment categories – The total number of STWs in size band 3 for each sewage treatment works category type (primary, Secondary Activated Sludge (SAS), Secondary Biological (SB), Tertiary A1 (TA1), Tertiary A2 (TA2), Tertiary B1 (TB1) and Tertiary B2 (TB2)). For full definitions of these different treatment category type, see 7B.2. Phosphorus Consent conditions - The total number of STWs in size band 3 with varying phosphorus consent conditions (<=0.5mg/l, >0.5 to <=1mg/l, >1mg/l and no permit). For further understanding of phosphorus consents, see 7B.7. BOD5 Consent conditions- The Load received by STWs in size band 1 with varying BOD5 consent conditions (<=7mg/l, >7 to <=10mg/l, >10 to <=20mg/l, >20mg/l, no permit). For further understanding of BOD5 consents, see 7B.5. Ammonia Consent conditions - The total number of STWs in size band 3 with varying ammonia consent conditions (<=1mg/l, >1 to <=3mg/l, >3 to <=10mg/l, >10mg/l, no permit). For further understanding of ammonia consents, see 7B.6. The reporting includes all sewage treatments works that NWL operate that are calculated to be 'size band 3'. The calculation of whether a sewage treatment works meets the definition of 'size band 3' should be calculated using resident population only, i.e. it should not be calculated using the non-resident population also. Non-resident population is defined as the holiday and tourist population connected to the sewerage system (note that this does not include daily commuters or day visitors).
7D.12	STWs in size band 4	Treatment categories (E – L) Treatment works consents (N – AD)	Number	Number of sewage treatment works of size band 4 (120-600 kilograms BOD5 per day which is equivalent to a Population equivalent of 2,000-10,000). BOD5 = '5-day Biochemical Oxygen Demand", this measures the quantity of biodegradable organic matter contained in water. This number is split into different components, namely: Treatment categories – The total number of STWs in size band 4 for each sewage treatment works category type (primary, Secondary Activated Sludge (SAS), Secondary Biological (SB), Tertiary A1 (TA1), Tertiary A2 (TA2), Tertiary B1 (TB1) and Tertiary B2 (TB2)). For full definitions of these different treatment category type, see 7B.2. Phosphorus Consent conditions - The total number of STWs in size band 4 with varying phosphorus consent conditions (<=0.5mg/l, >0.5 to <=1mg/l, >1mg/l and no permit). For further understanding of phosphorus consents, see 7B.7. BOD5 Consent conditions- The Load received by STWs in size band 1 with varying BOD5 consent conditions (<=7mg/l, >7 to <=10mg/l, >10 to <=20mg/l, >20mg/l, no permit). For further understanding of BOD5 consents, see 7B.5. Ammonia Consent conditions - The total number of STWs in size band 4 with varying ammonia consent conditions (<=1mg/l, >1 to <=3mg/l, >3 to <=10mg/l, >10mg/l, no permit). For further understanding of ammonia consents, see 7B.6 The reporting includes all sewage treatments works that NWL operate that are calculated to be 'size band 4'. The calculation of whether a sewage treatment works meets the definition of 'size band 4' should be calculated using resident population only, i.e. it should not be calculated using the non-resident population also. Non-resident population is defined as the holiday and tourist population connected to the sewerage system (note that this does not include daily commuters or day visitors).

7D.13	STWs in size band 5	Treatment categories (E – L) Treatment works consents (N – AD)	Number	Number of sewage treatment works of size band 5 (600-1,500 kilograms BOD5 per day which is equivalent to a Population equivalent of 10,000 - 25,000). BOD5 = '5-day Biochemical Oxygen Demand", this measures the quantity of biodegradable organic matter contained in water. This number is split into different components, namely: Treatment categories – The total number of STWs in size band 5 for each sewage treatment works category type (primary, Secondary Activated Sludge (SAS), Secondary Biological (SB), Tertiary A1 (TA1), Tertiary A2 (TA2), Tertiary B1 (TB1) and Tertiary B2 (TB2)). For full definitions of these different treatment category type, see 7B.2. Phosphorus Consent conditions - The total number of STWs in size band 5 with varying phosphorus consent conditions (<=0.5mg/l, >0.5 to <=1mg/l, >1mg/l and no permit). For further understanding of phosphorus consents, see 7B.7. BOD5 Consent conditions- The Load received by STWs in size band 1 with varying BOD5 consent conditions (<=7mg/l, >7 to <=10mg/l, >10 to <=20mg/l, >20mg/l, no permit). For further understanding of BOD5 consents, see 7B.5. Ammonia Consent conditions - The total number of STWs in size band 5 with varying ammonia consent conditions (<=1mg/l, >1 to <=3mg/l, >3 to <=10mg/l, >10mg/l, no permit). For further understanding of ammonia consents, see 7B.6.easures the quantity of biodegradable organic matter contained in water. The reporting includes all sewage treatments works that NWL operate that are calculated to be 'size band 5'. The calculation of whether a sewage treatment works meets the definition of 'size band 5' should be calculated using resident population only, i.e. it should not be calculated using the non-resident population also. Non-resident population is defined as the holiday and tourist population connected to the sewerage system (note that this does not include daily commuters or day visitors).
7D.14	STWs above size band 5	Treatment categories (E – L) Treatment works consents (N – AD)	Number	Number of sewage treatment works of size band above size band 5 (>1,500 kilograms BOD5 per day which is equivalent to a Population equivalent of >25,000). BOD5 = '5-day Biochemical Oxygen Demand", this measures the quantity of biodegradable organic matter contained in water. This number is split into different components, namely: Treatment categories – The total number of STWs above size band 5 for each sewage treatment works category type (primary, Secondary Activated Sludge (SAS), Secondary Biological (SB), Tertiary A1 (TA1), Tertiary A2 (TA2), Tertiary B1 (TB1) and Tertiary B2 (TB2)). For full definitions of these different treatment category type, see 7B.2. Phosphorus Consent conditions - The total number of STWs above size band 5 with varying phosphorus consent conditions (<=0.5mg/l, >0.5 to <=1mg/l, >1mg/l and no permit). For further understanding of phosphorus consents, see 7B.7. BOD5 Consent conditions- The Load received by STWs in size band 1 with varying BOD5 consent conditions (<=7mg/l, >7 to <=10mg/l, >10 to <=20mg/l, >20mg/l, no permit). For further understanding of BOD5 consents, see 7B.5. Ammonia Consent conditions - The total number of STWs above size band 5 with varying ammonia consent conditions (<=1mg/l, >1 to <=3mg/l, >3 to <=10mg/l, >10mg/l, no permit). For further understanding of ammonia consents, see 7B.6. The reporting includes all sewage treatments works that NWL operate that are calculated to 'above size band 5'. The calculation of whether a sewage treatment works meets the definition of 'above size band 5' should be calculated using resident population only, i.e. it should not be calculated using the non-resident population also. Non-resident population is defined as the holiday and tourist population connected to the sewerage system (note that this does not include daily commuters or day visitors).
7D.15	Total number of works	Treatment categories (E – L) Treatment works consents (N –	Number	Total number of sewage treatment works of all sizes. Calculated as sum of 7D.9 (Sewage Treatment Works in size band 1) to 7D.14 (Sewage Treatment Works above size band 5). This number is split into different components, namely: Treatment categories – The total number of STWs for each sewage treatment works category type (primary, Secondary Activated Sludge (SAS), Secondary Biological (SB), Tertiary A1 (TA1), Tertiary A2 (TA2), Tertiary B1 (TB1) and Tertiary B2 (TB2)). For full definitions of these different treatment category types, see 7B.2.

		AD)		Phosphorus Consent conditions - The total number of STWs with varying phosphorus consent conditions (<=0.5mg/l, >0.5 to <=1mg/l, >1mg/l and no permit). For further understanding of phosphorus consents, see 7B.7. BOD5 Consent conditions- The Load received by STWs in size band 1 with varying BOD5 consent conditions (<=7mg/l, >7 to <=10mg/l, >10 to <=20mg/l, >20mg/l, no permit). For further understanding of BOD5 consents, see 7B.5. Ammonia Consent conditions - The total number of STWs with varying ammonia consent conditions (<=1mg/l, >1 to <=3mg/l, >3 to <=10mg/l, >10mg/l, no permit). For further understanding of ammonia consents, see 7B.6 The reporting includes all sewage treatments works that NWL operate (size band 1 – to above size band 5).
7D.16	Current population equivalent served by STWs	E	000s population equivalent	Population equivalent (resident) connected to sewage treatment works. Equivalent population should be calculated on the basis of 60 grams BOD5 per capita per day. Imported effluents should be included in calculation. No account should be taken of holiday (non-resident) population. BOD5 stands for '5-day Biochemical Oxygen Demand". This measures the quantity of biodegradable organic matter contained in water. Resident population includes non-household customers i.e. businesses but does not include non-resident population, e.g. holidaymakers. The reporting includes all sewage treatments works that NWL operate (size band 1 – to above size band 5).
7D.17	Current population equivalent served by filter bed or activated sludge STWs with tightened/new P consents	E	000s population equivalent	Population equivalent served by biological filter Sewage Treatment Works or activated sludge Sewage Treatment Works at which there are new or tightened consent conditions for phosphorus, delivered in the report year and for which costs are reported in 4M.28-30 (Phosphorus removal). Equivalent population should be calculated on the basis of 60 grams BOD5 per capita per day. The reporting includes all sewage treatments works that NWL operate (size band 1 – to above size band 5). Note: NWL has not obtained any new or tightened consent conditions for phosphorous within the reporting year.
7D.18	Current population equivalent served by STWs with tightened/new N consents	E	000s population equivalent	Population equivalent served by Sewage Treatment Works at which there are new or tightened consent conditions for nitrogen, delivered in the report and for which capital costs are reported in 4M.25-27. Equivalent population should be calculated on the basis of 60 grams BOD5 per capita per day. The reporting includes all sewage treatments works that NWL operate (size band 1 – to above size band 5). Note: NWL has not obtained any new or tightened consent conditions for nitrogen within the reporting year.
7D.19	Current population equivalent served by STWs with tightened/new sanitary parameter consents	E	000s population equivalent	Population equivalent served by Sewage Treatment Works at which there are new or tightened consent conditions for one or more sanitary parameters, delivered in the report year and for which capital costs are reported in 4M.31-33 Equivalent population should be calculated on the basis of 60 grams BOD5 per capita per day. The reporting includes all sewage treatments works that NWL operate (size band 1 – to above size band 5). Note: NWL has not obtained any new or tightened consent conditions for one or more sanitary parameters within the reporting year.
7D.20	Current population equivalent served by STWs with tightened/new UV consents	E	000s population equivalent	Population equivalent served by Sewage Treatment Works at which there are new or tightened consent conditions for microbiological parameters to meet the requirements of the European Union Shellfish waters or revised Bathing Water Directives, delivered in the report year and for which capital costs are reported in 4M.31-33. Equivalent population should be calculated on the basis of 60 grams BOD5 per capita per day. The reporting includes all sewage treatments works that NWL operate (size band 1 – to above size band 5). Note: NWL has not obtained any new or tightened consent conditions for microbiological parameters within the reporting year.
7D.21	Population equivalent treatment	E	000s population	The increase in treatment capacity, from company action, measured in population equivalent. Equivalent population should be calculated on the basis of 60 grams BOD5 per capita per day. The increase must be measured from the previous year's capacity of existing sewage treatment works and the previous capacity at each works must be the higher of the then current design capacity or the company's revised

	capacity enhancement		equivalent	understanding of actual capacity before the company's action. The reporting includes all sewage treatments works that NWL operate (size band 1 – to above size band 5).
7D.22	Current population equivalent served by STW with tightened / new consents for chemicals	E	000s population equivalent	Population equivalent served by STWs at which new or tightened consent conditions for chemicals required by the national 'Pathway to good measures for chemicals' programme, or to prevent deterioration in chemical status, or to achieve standstill limits for chemicals are met by schemes, delivered in the report year and for which costs are reported in 4M.19-21. Exclude population equivalent served by STWs associated with investigations for which costs are reported in 4M.22-24.Equivalent population should be calculated on the basis of 60 grams BOD5 per capita per day. The reporting includes all sewage treatments works that NWL operate (size band 1 – to above size band 5). Note: NWL have not obtained any new or tightened consent conditions for one or more sanitary parameters within the reporting year.
7E.2	Designated coastal bathing waters	Input	Number	Total number of EU designated coastal bathing waters within the company's operating area.
8A.1	Total sewage sludge produced, treated by incumbents	Total	Total tonnes dry solids per year (ttds/ year)	This is a measure of all the untreated sewage sludge (primary, secondary, tertiary) produced by in-area wastewater treatment processes in the report year which is either treated by the incumbent or remains untreated prior to disposal. Grit and screenings removed through preliminary treatment processes should be excluded. Cross-border imports should be excluded. Primary sludge is a result of the capture of suspended solids and organics in the primary treatment process. Secondary sludge has a lower biogas potential because the microorganisms in the secondary treatment process have consumed most of their energy content leaving behind mainly inert biomass. Tertiary sludge is sludge that has had the phosphates and nitrates from the water supply removed. Sludge treated by managed contractors should be included; sludge treated by separate 3rd party service providers should be reported in 8A.2 (Total sewage sludge produced, treated by 3rd party sludge service provider). A managed contractor is defined as a company that is acting under NWL's direction and NWL remain responsible for the process. A 3rd party sludge service provider is a company that NWL engage to treat and/or dispose of sludge on their behalf and are not managed by NWL, i.e. they do so in a manner the 3rd party chooses and take on this responsibility. All sludge produced by all NWL in-area wastewater treatment processes which is either treated by the incumbent or remains untreated prior to disposal in the report year should be included in the reporting for this measure. It should not include sludge imported "cross border" that was produced through another water company's wastewater treatment processes but NWL go on to treat the sludge further prior to disposal; and sludge produced by 3rd party sludge service providers.
8A.2	Total sewage sludge produced, treated by 3rd party sludge service provider	Total	Total tonnes dry solids per year (ttds/ year)	This is a measure of all the untreated sewage sludge (primary, secondary, tertiary) produced by in-area wastewater treatment processes in the report year which is treated by a 3rd party sludge service provider. Grit and screenings removed through preliminary treatment processes should be excluded. Cross-border imports should be excluded. Primary sludge is a result of the capture of suspended solids and organics in the primary treatment process. Secondary sludge has a lower biogas potential because the microorganisms in the secondary treatment process have consumed most of their energy content leaving behind mainly inert biomass. Tertiary sludge is sludge that has had the phosphates and nitrates from the water supply removed. Sludge treated by managed contractors (as opposed to separate 3rd party service providers) should be excluded; instead it should be reported in 8A.1 (Total sewage sludge produced, treated by incumbents). A managed contractor is defined as a company that is acting under NWL's direction and NWL remain responsible for the process. A 3rd party sludge service provider is a company that NWL engage to treat and/or dispose of sludge on their behalf and are not managed by NWL, i.e. they do so in a manner the 3rd party chooses and take on this responsibility. All sludge produced by all NWL in-area wastewater treatment processes which is treated by a 3rd party sludge provider in the report year should be included in the reporting for this measure. It should not include sludge imported "cross border" that was produced through another water company's wastewater treatment processes but NWL go on to treat the sludge further prior to disposal; and sludge treated by NWL themselves and by managed contracts.

8A.3	Total sewage sludge produced	Total	Total tonnes dry solids per year (ttds/ year)	To be entered as the sum of 8A.1 (Total sewage sludge produced, treated by incumbents) and 8A.2 (Total sewage sludge produced, treated by 3rd party sludge service provider). A managed contractor is defined as a company that is acting under NWL's direction and NWL remain responsible for the process. A 3rd party sludge service provider is a company that NWL engage to treat and/or dispose of sludge on their behalf and are not managed by NWL, i.e. they do so in a manner the 3rd party chooses and take on this responsibility. All sludge produced by all NWL in-area wastewater treatment processes which is either treated by the incumbent, remains untreated prior to disposal, or treated by a 3rd party sludge provider in the report year should be included in the reporting for this measure. It should not include sludge imported "cross border" that was produced through another water company's wastewater treatment processes but NWL go on to treat the sludge further prior to disposal.
8A.4	Total sewage sludge produced from non-appointed liquid waste treatment	Total	Total tonnes dry solids per year (ttds/ year)	This is an estimate of all the untreated sewage sludge (primary, secondary, tertiary) produced by in-area wastewater treatment processes in the report year, and which is produced as a result of treating non-appointed liquid wastes (waste that NWL are not statutory required to treat so have special agreements with customers to treat, this does not include Trade Effluent that is consider "appointed" waste) through appointed wastewater treatment assets (assets that NWL operate to achieve their statutory requirements). Because this sludge is generated at in-area wastewater treatment sites, this quantity is included in the total for 8A.3. Cross-border imports should be excluded. To calculate, flow readers record the volume of liquid received from non-appointed customers, or measured as it was offloaded at a sewage treatment works with the suspended solids measured to estimate the dry solids included within the material. All sludge produced by all NWL in-area wastewater treatment processes from non-appointed liquid waste in the report year should be included in the reporting for this measure. It should not include sludge imported "cross border" that was produced through another water company's wastewater treatment processes but NWL go on to treat the sludge further prior to disposal.
8A.5	Percentage of sludge produced and treated at a site of STW and STC co-location	Total	Percentage (%)	The percentage of the sludge quantity reported in 8A.3 that is produced at co-located sites. For the purposes of this definition: i) "co-located" includes sites where the STC is physically separate but the sludge is transferred from a wastewater treatment site by pipeline; and ii) STC means any site where sludge is treated to a standard such that it can be recycled to the environment or disposed of without any further treatment. NWL have determined that sludge produced at sites where it is also treated through "dewatering" are considered to be co-location sites as the sludge produced at these sites is treated to a standard such that it can be recycled to the environment or disposed of without any further treatment but NWL choose to treat it further prior to disposal. All sludge produced by all NWL in-area wastewater treatment processes which is either treated by the incumbent, remains untreated prior to disposal, or treated by a 3rd party sludge provider in the report year should be included in the reporting for this measure. It should not include sludge imported "cross border" that was produced through another water company's wastewater treatment processes but NWL go on to treat the sludge further prior to disposal.
8A.6	Total sewage sludge disposed by incumbents	Total	Total tonnes dry solids per year (ttds/ year)	The total amount of sewage sludge treated and disposed of during the report year by the incumbent. This should include disposal to farmland (irrespective of whether spreading is undertaken by the 3rd party service provider or the farmer), landfill, incineration, composting and other routes. This will be different from sewage sludge produced due to: - quantities of lime used in lime treated sludge, - losses of volatile solids in the treatment process, and - changes in the amount of stockpiled sludge. Sludge disposed of by managed contractors should be included; sludge disposed of by separate 3rd party service providers should be reported in 8A.7 (Total sewage sludge disposed by 3rd party sludge service provider). A managed contractor is defined as a company that is acting under NWL's direction and NWL remain responsible for the process. A 3rd party sludge service provider is a company that NWL engage to treat and/or dispose of sludge on their behalf and are not managed by NWL, i.e. they do so in a manner the 3rd party chooses and take on this responsibility. All sludge disposed by NWL themselves and by managed contractors in the report year should be included in the reporting for this measure. It should not include sludge disposed by 3rd party sludge service providers.
8A.7	Total sewage sludge disposed by 3rd	Total	Total tonnes dry solids	The total amount of sewage sludge treated and disposed of during the report year by a 3rd party sludge service provider expressed in thousands of tonnes of dry solids of sludge. This should include recycling to farmland (irrespective of whether spreading is undertaken by the 3rd party service provider or the farmer) and disposal to landfill, incineration, land restoration/ reclamation, composting and other routes. This may

	party sludge service provider		per year (ttds/ year)	be different from sewage sludge produced due to: - quantities of lime used in lime treated sludge, - losses of volatile solids in the treatment process, and - changes in the amount of sludge stockpiled at sludge treatment centres. Sludge disposed of by managed contractors (as opposed to separate 3rd party service providers) should be excluded; instead it should be reported in line 8A.6 (Total sewage sludge disposed by incumbents). A managed contractor is defined as a company that is acting under NWL's direction and NWL remain responsible for the process. A 3rd party sludge service provider is a company that NWL engage to treat and/or dispose of sludge on their behalf and are not managed by NWL, i.e. they do so in a manner the 3rd party chooses and take on this responsibility. All sludge disposed by a third party service provider in the report year should be included in the reporting for this measure. It should not include sludge disposed by NWL themselves and by managed contractors on their behalf.
8A.8	Total sewage sludge disposed	Total	Total tonnes dry solids per year (ttds/ year)	To be entered as the sum of 8A.6 (Total sewage sludge disposed by incumbents) and 8A.7 (Total sewage sludge disposed by 3rd party sludge service provider). A managed contractor is defined as a company that is acting under NWL's direction and NWL remain responsible for the process. A 3rd party sludge service provider is a company that NWL engage to treat and/or dispose of sludge on their behalf and are not managed by NWL, i.e. they do so in a manner the 3rd party chooses and take on this responsibility. All sludge disposed by NWL themselves and by managed contractors, and by 3rd party sludge service providers in the report year should be included in the reporting for this measure.
8A.9	Total measure of intersiting 'work' done by pipeline	Total	Total tonnes dry solids*kilometres travelled per year (ttds*km/year)	Total work done in intersiting sludge operations (moving sludge between sites where it was produced to where it receives further treatment) by pipeline during the report year measured as the product of sludge mass (in thousand tonnes dry solids) multiplied by distance conveyed (in km). Based on actual length of pipeline from sludge holding tanks to Sludge Treatment Centre, not straight line distance. This measure should not include sludge transported between Sewage Treatment Works via a gravity sewer, the operating costs of which are allocated to Network+. It is calculated using the following formula: (km1*ttds1)+(km2*ttds2)+……(kmN*ttdsN) All sludge produced by all NWL in-area wastewater treatment processes which is moved between sites by pipeline by either treated by the incumbent, remains untreated prior to disposal, or treated by a 3rd party sludge provider in the report year should be included in the reporting for this measure. It should exclude sludge that is moved between sites by truck and tanker.
8A.10	Total measure of intersiting 'work' done by tanker	Total	Total tonnes dry solids*kilometres travelled per year (ttds*km/year)	Total work done in intersiting sludge operations (moving sludge between sites where it was produced to where it receives further treatment) carried out by road tanker during the report year measured as the product of sludge mass (in thousand tonnes dry solids) multiplied by distance travelled (in km). Based on actual distance travelled from sludge holding tanks to Sludge Treatment Centre, not straight line distance. If actual road distances are not available, estimates of journey distance are used. Work done by other forms of transport of liquid sludge (e.g. tractors) should be included in this line. This measure should exclude the distance travelled by vehicles to the sewage treatment works to collect the sludge. It is calculated using the following formula: (km1*ttds1)+(km2*ttds2)+……(kmN*ttdsN) All sludge produced by all NWL in-area wastewater treatment processes which is moved between sites by tanker by either treated by the incumbent, remains untreated prior to disposal, or treated by a 3rd party sludge provider in the report year should be included in the reporting for this measure. It should exclude sludge that is moved between sites by truck and pipeline.
8A.11	Total measure of intersiting 'work' done by truck	Total	Total tonnes dry solids*kilometres travelled per year (ttds*km/year)	Total work done in intersiting sludge operations (moving sludge between sites where it was produced to where it receives further treatment) carried out by truck during the report year measured as the product of sludge mass (in thousand tonnes dry solids) multiplied by distance travelled (in km). Based on actual distance travelled from sludge holding tanks to Sludge Treatment Centre, not straight line distance. If actual road distances are not available, estimates of journey distance are used. This measure should exclude the distance travelled by vehicles to the sewage treatment works to collect the sludge. It is calculated using the following formula: (km1*ttds1)+(km2*ttds2)+……(kmN*ttdsN) All sludge produced by all NWL in-area wastewater treatment processes which is moved between sites by truck by either treated by the incumbent, remains untreated prior to disposal, or treated by a 3rd party sludge provider in the report year should be included in the reporting for this measure. It should exclude sludge that is moved between sites by tanker and pipeline.

8A.12	Total measure of intersiting 'work' done (all forms of transportation)	Total	Total tonnes dry solids*kilometres travelled per year (ttds*km/year)	To be entered as the sum of 8A.9 (Total measure of intersiting 'work' done by pipeline), 8A.10 (Total measure of intersiting 'work' done by tanker) and 8A.11 (Total measure of intersiting 'work' done by truck).
8A.13	Total measure of intersiting 'work' done by tanker (by volume transported)	Total	Metres cubed*kilometres travelled per year (m3*km/year)	Total work done in intersiting sludge operations (moving sludge between sites where it was produced to where it receives further treatment) carried out by road tanker during the report year measured as the product of sludge volume (in m3) multiplied by distance travelled (in km) in transporting the sludge. Based on actual distance travelled from sludge holding tanks to Sludge Treatment Centre, not straight line distance. If actual road distances are not available, estimates of journey distance are used. Work done by other forms of transport of liquid sludge (e.g. tractors) should be included in this line. This measure should exclude the distance travelled by vehicles to the sewage treatment works to collect the sludge. No account should be taken of distance travelled by empty tankers. It is calculated using the following formula: (km1*ttds1)+(km2*ttds2)+…...(kmN*ttdsN) All sludge produced by all NWL in-area wastewater treatment processes which is moved between sites by tanker by either treated by the incumbent, remains untreated prior to disposal, or treated by a 3rd party sludge provider in the report year should be included in the reporting for this measure. It should exclude sludge that is moved between sites by truck and pipeline.
8A.14	Total measure of 'work' done in sludge disposal operations by pipeline	Total	Total tonnes dry solids*kilometres travelled per year (ttds*km/year)	Total work done in sludge disposal operations carried out by pipeline (e.g. transport to an incinerator) during the report year measured as the product of sludge mass (in thousand tonnes dry solids) multiplied by distance travelled (in km). Based on actual distance travelled from the Sludge Treatment Centre to the landbank, landfill site, land reclamation site or incinerator as appropriate, not straight line distance. It is calculated using the following formula: (km1*ttds1)+(km2*ttds2)+…...(kmN*ttdsN) All sludge disposed by pipeline, whether by NWL themselves or by managed contractors on their behalf, and by 3rd party sludge service providers in the report year should be included in the reporting for this measure. It should exclude sludge that is disposed by truck and tanker.
8A.15	Total measure of 'work' done in sludge disposal operations by tanker	Total	Total tonnes dry solids*kilometres travelled per year (ttds*km/year)	Total work done in sludge disposal operations carried out by road tanker during the report year measured as the product of sludge mass (in thousand tonnes dry solids) multiplied by distance travelled (in km). Based on actual distance travelled from the Sludge Treatment Centre to the landbank, landfill site or land reclamation site as appropriate, not straight line distance. If actual road distances are not available, estimates of journey distance are used. Work done by other forms of transport of liquid sludge (e.g. tractors) should be included in this line. This measure should exclude the distance travelled by vehicles to the sludge treatment centres to collect the sludge. It is calculated using the following formula: (km1*ttds1)+(km2*ttds2)+…...(kmN*ttdsN) All sludge disposed by tanker, whether by NWL themselves or by managed contractors on their behalf, and by 3rd party sludge service providers in the report year should be included in the reporting for this measure. It should exclude sludge that is disposed by truck and pipeline.
8A.16	Total measure of 'work' done in sludge disposal operations by truck	Total	Total tonnes dry solids*kilometres travelled per year (ttds*km/year)	Total work done in sludge disposal operations carried out by truck during the report year measured as the product of sludge mass (in thousand tonnes dry solids) multiplied by distance travelled (in km). Based on actual distance travelled from the Sludge Treatment Centre to the landbank, landfill site or land reclamation site as appropriate, not straight line distance. If actual road distances are not available, estimates of journey distance are used. This measure should exclude the distance travelled by vehicles to the sludge treatment centres to collect the sludge. It is calculated using the following formula: (km1*ttds1)+(km2*ttds2)+…...(kmN*ttdsN) All sludge disposed by truck, whether by NWL themselves or by managed contractors on their behalf, and by 3rd party sludge service providers in the report year should be included in the reporting for this measure. It should exclude sludge that is disposed by tanker and pipeline.
8A.17	Total measure of 'work' done in sludge disposal	Total	Total tonnes dry solids*kilometres	The sum of lines 8A.14 (Total measure of 'work' done in sludge disposal operations by pipeline), 8A.15 (Total measure of 'work' done in sludge disposal operations by tanker), and 8A.16 (Total measure of 'work' done in sludge disposal operations by truck).

	operations (all forms of transportation)		travelled per year (ttds*km/year)	
8A.18	Total measure of 'work' done by tanker in sludge disposal operations (by volume transported)	Total	Metres cubed*kilometres travelled per year (m3*km/year)	Total work done in sludge disposal operations carried out by road tanker during the report year measured as the product of sludge volume (in m3) multiplied by distance travelled (in km) in transporting the sludge. Based on actual distance travelled from the Sludge Treatment Centre to the landbank, landfill site or land reclamation site as appropriate, not straight line distance. If actual road distances are not available, estimates of journey distance are used. Work done by other forms of transport of liquid sludge (e.g. tractors) should be included in this line. No account should be taken of distance travelled by empty tankers. This measure should exclude the distance travelled by vehicles to the sludge treatment centres to collect the sludge. It is calculated using the following formula: (km1*ttds1)+(km2*ttds2)+……(kmN*ttdsN) All sludge disposed by tanker, whether by NWL themselves or by managed contractors on their behalf, and by 3rd party sludge service providers in the report year should be included in the reporting for this measure. It should exclude sludge that is disposed by truck and pipeline.
8A.19	Chemical P sludge as % of sludge produced at STWs	Total	Percentage (%)	The total quantity of sludge produced at wastewater treatment works which use chemical dosing for phosphorus removal expressed as a percentage of total sludge produced at all in area wastewater treatment works (i.e. 8A.3). All sludge produced by all NWL in-area wastewater treatment processes which is either treated by the incumbent, remains untreated prior to disposal, or treated by a 3rd party sludge provider in the report year which use chemical dosing for phosphorus removal should be included in the reporting for this measure. It should not include sludge imported “cross border” that was produced through another water company’s wastewater treatment processes but NWL go on to treat the sludge further prior to disposal.
8D.1	% Sludge - untreated	By incumbent By 3rd party sludge service providers	%	Percentage of sludge produced which is untreated prior to disposal. This measure calculates the percentage of total sludge produced by NWL in-area wastewater treatment processes in the report year that does not go on to have any further treatment prior to its disposal. This does not include grit and screenings that were removed through preliminary treatment processes. Cross border imports of sludge from another water company should also not be considered when calculating the percentage. This number is split into different components, namely: By incumbent – NWL themselves were responsible for the treatment of sludge; and By 3rd party sludge service providers – NWL contracted a 3rd party to treat the sludge on their behalf Sludge treated by managed contractors should be included within ‘By incumbent’.
8D.2	% Sludge treatment process - raw sludge liming	By incumbent By 3rd party sludge service providers	%	Percentage of sludge produced which is untreated other than by liming. This measure calculates the percentage of total sludge produced by NWL in-area wastewater treatment processes in the report year that is treated by “liming” prior to its disposal. This does not include grit and screenings that were removed through preliminary treatment processes. Cross border imports of sludge from another water company should also not be considered when calculating the percentage. This number is split into different components, namely: By incumbent – NWL themselves were responsible for the treatment of sludge; and By 3rd party sludge service providers – NWL contracted a 3rd party to treat the sludge on their behalf Sludge treated by managed contractors should be included within ‘By incumbent’.

8D.3	% Sludge treatment process - conventional AD	By incumbent By 3rd party sludge service providers	%	Percentage of sludge produced which is treated by conventional Anaerobic Digestion (with or without liming). This measure calculates the percentage of total sludge produced by NWL in-area wastewater treatment processes in the report year that is treated by conventional Anaerobic Digestion (with or without liming) prior to its disposal. This does not include grit and screenings that were removed through preliminary treatment processes. Cross border imports of sludge from another water company should also not be considered when calculating the percentage. This number is split into different components, namely: By incumbent – NWL themselves were responsible for the treatment of sludge; and By 3rd party sludge service providers – NWL contracted a 3rd party to treat the sludge on their behalf Sludge treated by managed contractors should be included within 'By incumbent'.
8D.4	% Sludge treatment process - advanced AD	By incumbent By 3rd party sludge service providers	%	Percentage of sludge produced which is treated by advanced Anaerobic Digestion (with or without liming). This measure calculates the percentage of total sludge produced by NWL in-area wastewater treatment processes in the report year that is treated by advanced Anaerobic Digestion (with or without liming) prior to its disposal. This does not include grit and screenings that were removed through preliminary treatment processes. Cross border imports of sludge from another water company should also not be considered when calculating the percentage. Advanced Anaerobic Digestion includes the following types: Thermal Hydrolysis Process, Enzymic Hydrolysis, two- stage + Publicly Available Specification 110 certified and Acid Phase Digestion. This number is split into different components, namely: By incumbent – NWL themselves were responsible for the treatment of sludge; and By 3rd party sludge service providers – NWL contracted a 3rd party to treat the sludge on their behalf Sludge treated by managed contractors should be included within 'By incumbent'.
8D.5	% Sludge treatment process - incineration of raw sludge	By incumbent By 3rd party sludge service providers	%	Percentage of sludge produced which is untreated other than by incineration. This measure calculates the percentage of total sludge produced by NWL in-area wastewater treatment processes in the report year that is treated by incineration. This does not include grit and screenings that were removed through preliminary treatment processes. Cross border imports of sludge from another water company should also not be considered when calculating the percentage. This number is split into different components, namely: By incumbent – NWL themselves were responsible for the treatment of sludge; and By 3rd party sludge service providers – NWL contracted a 3rd party to treat the sludge on their behalf Sludge treated by managed contractors should be included within 'By incumbent'.
8D.6	% Sludge treatment process - other (specify)	By incumbent By 3rd party sludge service providers	%	Percentage of sludge produced by other treatment type(s) than those described in 8D.2 (% Sludge treatment process - raw sludge liming) to 8D.6 (% Sludge treatment process -incineration of raw sludge). This measure calculates the percentage of total sludge produced by NWL in-area wastewater treatment processes in the report year that is treated by other treatment types than those described in 8D.2 (% Sludge treatment process - raw sludge liming) to 8D.6 (% Sludge treatment process - incineration of raw sludge) prior to its disposal. This does not include grit and screenings that were removed through preliminary treatment processes. Cross border imports of sludge from another water company should also not be considered when calculating the percentage. This number is split into different components, namely: By incumbent – NWL themselves were responsible for the treatment of sludge; and By 3rd party sludge service providers – NWL contracted a 3rd party to treat the sludge on their behalf

				Sludge treated by managed contractors should be included within ‘By incumbent’.
8D.7	% Sludge treatment process - Total	By incumbent By 3rd party sludge service providers	%	Calculated as the sum of lines 8D.1 (% Sludge – untreated) to 8D.7 (% Sludge treatment process - other (specify)). The totals for the incumbent and 3rd party service provider columns should sum to 100%. This number is split into different components, namely: By incumbent – NWL themselves were responsible for the treatment of sludge; and By 3rd party sludge service providers – NWL contracted a 3rd party to treat the sludge on their behalf Sludge treated by managed contractors should be included within ‘By incumbent’.
8D.8	% Sludge disposal route - landfill, raw	By incumbent By 3rd party sludge service providers	%	Percentage of (un-incinerated) sludge by disposal route - landfill, raw. This measure calculates the percentage of total sludge disposed to landfill in its raw state (i.e. no further treatment of the sludge since its production), that was produced by NWL in-area wastewater treatment processes and cross border in the report year and has not been incinerated (i.e. included in the reporting for 8D.5). This number is split into different components, namely: By incumbent – NWL themselves were responsible for the disposal of sludge; and By 3rd party sludge service providers – NWL contracted a 3rd party to dispose of the sludge on their behalf Sludge treated by managed contractors should be included within ‘By incumbent’.
8D.9	% Sludge disposal route - landfill, partly treated	By incumbent By 3rd party sludge service providers	%	Percentage of (un-incinerated) sludge by disposal route - landfill, partly treated. This measure calculates the percentage of total sludge disposed to landfill that has been partly treated, that was produced by NWL in-area wastewater treatment processes and cross border imports in the report year and has not been incinerated (i.e. included in the reporting for 8D.5). This number is split into different components, namely: By incumbent – NWL themselves were responsible for the disposal of sludge; and By 3rd party sludge service providers – NWL contracted a 3rd party to dispose of the sludge on their behalf Sludge treated by managed contractors should be included within ‘By incumbent’.
8D.10	% Sludge disposal route - land restoration/ reclamation	By incumbent By 3rd party sludge service providers	%	Percentage of (un-incinerated) sludge by disposal route - land restoration / reclamation. This measure calculates the percentage of total sludge disposed through land restoration or reclamation, that was produced by NWL in-area wastewater treatment processes and cross border imports in the report year and has not been incinerated (i.e. included in the reporting for 8D.5). This number is split into different components, namely: By incumbent – NWL themselves were responsible for the disposal of sludge; and By 3rd party sludge service providers – NWL contracted a 3rd party to dispose of the sludge on their behalf Sludge treated by managed contractors should be included within ‘By incumbent’.

8D.11	% Sludge disposal route - sludge recycled to farmland	By incumbent By 3rd party sludge service providers	%	Percentage of (un-incinerated) sludge by disposal route - sludge recycled to farmland. This measure calculates the percentage of total sludge disposed through recycling to farmland, that was produced by NWL in-area wastewater treatment processes and cross border imports in the report year and has not been incinerated (i.e. included in the reporting for 8D.5). This number is split into different components, namely: By incumbent – NWL themselves were responsible for the disposal of sludge; and By 3rd party sludge service providers – NWL contracted a 3rd party to dispose of the sludge on their behalf Sludge treated by managed contractors should be included within 'By incumbent'.
8D.12	% Sludge disposal route - other (specify)	By incumbent By 3rd party sludge service providers	%	Percentage of (un-incinerated) sludge by disposal route - other (specify). This measure calculates the percentage of total sludge disposed through another route other than those described in 8D.8 (% Sludge disposal route - landfill, raw) to 8D..11 (% Sludge disposal route - sludge recycled to farmland), that was produced by NWL in-area wastewater treatment processes and cross border imports in the report year and has not been incinerated (i.e. included in the reporting for 8D.5). This number is split into different components, namely: By incumbent – NWL themselves were responsible for the disposal of sludge; and By 3rd party sludge service providers – NWL contracted a 3rd party to dispose of the sludge on their behalf Sludge treated by managed contractors should be included within 'By incumbent'.
8D.13	% Sludge disposal route - Total	By incumbent By 3rd party sludge service providers	%	The totals for the incumbent and 3rd party service provider columns should sum to 100%. This number is split into different components, namely: By incumbent – NWL themselves were responsible for the disposal of sludge; and By 3rd party sludge service providers – NWL contracted a 3rd party to dispose of the sludge on their behalf Sludge treated by managed contractors should be included within 'By incumbent'.
A1	Total number of contracts held with a third party at end of the financial year	2021-22 value	Number	The number of current contracts held with third parties to provide a bioresources service (treatment, transport, recycling) at the end of the financial year. Where a contract covers more than one service (transport, treatment and/or recycling) companies should record this as a single contract but if there are two contracts in place with the same supplier to provider different services then these would be counted separately. Companies should not include contracts that they hold with joint ventures, associated companies or where they retain ownership of assets or equipment being used by contractors on their behalf.
A2	Total amount paid on contracts during the financial year	2021-22 value	£000	The total amount paid to third parties on bioresources service contracts (treatment, transport, recycling) during the financial year. This is for all contracts. It includes any amount of money paid out on contracts that ended during the year.
A3	Number of different suppliers at the year end	2021-22 value	Number	The number of different suppliers with contracts held with the company to provide a bioresources service (treatment, transport, recycling). A company's own bioresources business should not be counted as a supplier. If two contracts are held with the same supplier to provide two different services (e.g. treatment and transport) then they would be counted as one supplier.

A4	Number of contracts ended during the year	2021-22 value	Number	The number of contracts held with third parties to provide a bioresources service (treatment, transport, recycling) that have either been terminated in the year or have come to the end of the contract.
A5	Number of contracts renewed during the year	2021-22 value	Number	The number of contracts held with third parties renewed during the financial year to provide a bioresources service (treatment, transport, recycling).
A6	Number of new contracts that have been agreed during the year	2021-22 value	Number	The number of new contracts with third parties that have been agreed during the financial year to provide a bioresources service (treatment, transport, recycling). The use of contractors to provide services such as routine servicing / maintenance should not be included. This does not include renewed contracts reported in A5.
B1	Number of formal tenders you issued during the year	2021-22 value	Number	The number of formal tenders issued during the financial year asking for bids by a third party to provide bioresources services.
B2	Total number of bids received on all your tenders	2021-22 value	Number	Total number of bids received for all formal tenders issued during the year. For instance, if a company received 6 bids for one project, the company should count all six bids. For clarity, this has been done based on the bids received in the year, for tenders awarded in the year.
B3	Number of tenders you awarded during the year	2021-22 value	Number	Number of contracts awarded during the year through the formal tendering process. The number of tenders awarded may be different from the number of formal tenders issued during the financial year, for example, differences may occur where the financial tender was issued the financial year before the contract was awarded, or where no bids were received for a tender.
C1	Number of offers made by a third party outside the formal tender process during the financial year	2021-22 value	Number	The number of offers or bids received by the company outside of any formal tendering process. We expect that an offer of transport / disposal services would include some financial and contractual detail, similar to what might be provided through an 'Expression of Interest' in a tendering process. We do not expect a company to count every speculative contact made either in writing or by phone for sludge transport and disposal activities. However, industry feedback has indicated that these sort of contacts are typical in sludge treatment. Therefore, for sludge treatment services, speculative / exploratory contacts made either in writing or by phone should be included.
C2	The number of successful offers	2021-22 value	Number	The number of offers or bids that have resulted in a contract being agreed during the financial year.
D1	Total quantity of sludge produced in performance of the company's functions as a sewerage undertaker	2021-22 value	Total tonnes dry solids per year (ttds/ year)	Total quantity of sludge produced by the network plus function. This figure should be given as thousand tonnes of dry solids in the financial year and will agree to D2 + D3.
D2	Quantity of sludge treated in-house	2021-22 value	Total tonnes dry solids per year (ttds/ year)	Thousand tonnes of dry solids treated in-house by your own bioresources business in the financial year and will agree to 8A.1. This is a measure of all the untreated sewage sludge (primary, secondary, tertiary) produced by in-area wastewater treatment processes in the report year which is either treated by the incumbent or remains untreated prior to disposal. Grit and screenings removed through preliminary treatment processes should be excluded. Cross-border imports should be excluded.

				Primary sludge is a result of the capture of suspended solids and organics in the primary treatment process. Secondary sludge has a lower biogas potential because the microorganisms in the secondary treatment process have consumed most of their energy content leaving behind mainly inert biomass. Tertiary sludge is sludge that has had the phosphates and nitrates from the water supply removed. Sludge treated by managed contractors should be included; sludge treated by separate 3rd party service providers should be reported in D3. A managed contractor is defined as a company that is acting under NWL's direction and NWL remain responsible for the process. A 3rd party sludge service provider is a company that NWL engage to treat and/or dispose of sludge on their behalf and are not managed by NWL, i.e. they do so in a manner the 3rd party chooses and take on this responsibility.
D3	Quantity of sludge treated by other regulated companies and their associated companies	2021-22 value	Total tonnes dry solids per year (ttds/ year)	This is a measure of all the untreated sewage sludge (primary, secondary, tertiary) produced by in-area wastewater treatment processes in the report year which is treated by a regulated 3rd party sludge service provider. Grit and screenings removed through preliminary treatment processes should be excluded. Cross-border imports should be excluded. Primary sludge is a result of the capture of suspended solids and organics in the primary treatment process. Secondary sludge has a lower biogas potential because the microorganisms in the secondary treatment process have consumed most of their energy content leaving behind mainly inert biomass. Tertiary sludge is sludge that has had the phosphates and nitrates from the water supply removed. Sludge treated by managed contractors (as opposed to separate regulated 3rd party service providers) should be excluded; instead it should be reported in D2. A managed contractor is defined as a company that is acting under NWL's direction and NWL remain responsible for the process. A 3rd party sludge service provider is a company that NWL engage to treat and/or dispose of sludge on their behalf and are not managed by NWL, i.e. they do so in a manner the 3rd party chooses and take on this responsibility.
D4	Quantity of sludge treated by non-regulated companies	2021-22 value	Total tonnes dry solids per year (ttds/ year)	This is a measure of all the untreated sewage sludge (primary, secondary, tertiary) produced by in-area wastewater treatment processes in the report year which is treated by a company other than regulated 3rd party sludge service provider. Grit and screenings removed through preliminary treatment processes should be excluded. Cross-border imports should be excluded. Primary sludge is a result of the capture of suspended solids and organics in the primary treatment process. Secondary sludge has a lower biogas potential because the microorganisms in the secondary treatment process have consumed most of their energy content leaving behind mainly inert biomass. Tertiary sludge is sludge that has had the phosphates and nitrates from the water supply removed. Sludge treated by managed contractors (as opposed to separate company other than regulated 3rd party sludge service provider) should be excluded; instead it should be reported in D2. A managed contractor is defined as a company that is acting under NWL's direction and NWL remain responsible for the process. A company other than regulated 3rd party sludge service provider is a company that NWL engage to treat and/or dispose of sludge on their behalf and are not managed by NWL, i.e. they do so in a manner the 3rd party chooses and take on this responsibility.
D5	Number of contracts to supply sludge treatment	2021-22 value	Number	The number of contracts to treat sludge as at the end of the financial year. The company should not include its own bioresources business as a supplier.
D6	Number of suppliers with contracts for sludge treatment	2021-22 value	Number	The number of different third-party suppliers that hold contracts to treat sludge as at the end of the financial year. The company should not include its own bioresources business as a supplier.
D7	Number of formal / informal approaches from other regulated companies and their associated companies to provide sludge treatment services.	2021-22 value	Number	The number of formal or informal approaches from other regulated companies and their associated companies to provide sludge treatment services in the financial year. This should include speculative / exploratory contacts made in writing or by phone.

D8	Number of formal / informal approaches from non-regulated companies to provide sludge treatment services	2021-22 value	Number	The number of formal or informal approaches from other companies, excluding regulated companies and their associated companies, to provide sludge treatment services in the financial year. This should include speculative / exploratory contacts made in writing or by phone.
E1	Total quantity of sludge transported by road	2021-22 value	Total tonnes dry solids (ttds)	Total thousand tonnes dry solids of sludge transported by road. This includes sludge transported from the network plus function to the sludge treatment centre (STC) as well as sludge from the STC to either a disposal site or for recycling to land. This is calculated by adding E2 and E3. NWL have not included within the reporting quantities of sludge transported from sewage treatment works (A) to intermediary sludge treatment centres (B) where it undergoes dewatering treatment, prior to being transported again to the main sludge treatment centres (C) for final treatment ahead of disposal. This is to prevent “double counting” of the sludge when it moves from (A) – (B) – (C). Included within the reporting are: movements of sludge from sewage treatment works direct to main sludge treatment centres (A) – (C); movements of sludge from intermediary sludge treatment centres to main sludge treatment centres (B) – (C). Also included are movements of sludge from main sludge treatment centres (once treated) (C) to farmland (E) for disposal (C) – (E). Where sludge transported from a main sludge treatment centres to farmland has moved via an intermediary site (D) by both NWL and a 3rd party at different stages of the journey (e.g main sludge treatment centre (C) to intermediary site (D) transported by NWL and intermediary site (D) to farmland (E) transported by 3rd party) only the volume transported from main sludge treatment centre (C) to intermediary site (D) has been included in E1 to prevent "double counting" - otherwise the same sludge transported from an intermediary site to farmland would be counted twice in the total of E1.
E2	Quantity of sludge transported by road in-house by your own bioresources service	2021-22 value	Total tonnes dry solids (ttds)	Thousand tonnes of dry solids transported by your own bioresources business in the financial year. E2 is the quantity of sludge reported in E1 that is transported by NWl's own bioresources business. Where sludge is transported to multiple locations throughout its journey to its destination (e.g. main sludge treatment centre to intermediary site transported by NWL and intermediary site to farmland transported by 3rd party) this is excluded from E2 and solely included in E3 to avoid double counting.
E3	Quantity of sludge transported by road by a third party	2021-22 value	Total tonnes dry solids (ttds)	Thousand tonnes of dry solids transported by a third party in the financial year. E3 is the quantity of sludge reported in E1 that is transported by 3rd parties. Where sludge is transported to multiple locations throughout its journey to its destination (e.g. main sludge treatment centre to intermediary site transported by NWL and intermediary site to farmland transported by 3rd party) this is solely included in E3 and excluded from E2 to avoid double counting.
E4	Number of contracts to provide sludge transport services	2021-22 value	Number	The number of contracts held at the end of the financial year with third parties to provide sludge transportation. The company should not include its own bioresources business as a supplier.
E5	Number of suppliers with contracts for sludge transportation	2021-22 value	Number	The number of different third-party suppliers that hold contracts to transport sludge as at the end of the financial year. The company should not include its own bioresources business as a supplier.
F1	Total quantity of sludge recycled or disposed	2021-22 value	Total tonnes dry solids (ttds)	Total thousand tonnes dry solids of sludge that is either disposed of or taken to land for recycling. This figure is reported in thousand tonnes dry solids for the financial year and will agree to 8A.8. A managed contractor is defined as a company that is acting under NWL’s direction and NWL remain responsible for the process. A 3rd party sludge service provider is a company that NWL engage to treat and/or dispose of sludge on their behalf and are not managed by NWL, i.e. they do so in a manner the 3rd party chooses and take on this responsibility.

F2	Quantity of sludge recycled or disposed in-house by your own bioresources service	2021-22 value	Total tonnes dry solids (ttds)	Thousand tonnes of dry solids disposed or recycled by your own bioresources business in the financial year and will agree to 8A.6. Sludge disposed of by managed contractors should be included; sludge disposed of by separate 3rd party service providers should be reported in F3. A managed contractor is defined as a company that is acting under NWL's direction and NWL remain responsible for the process. A 3rd party sludge service provider is a company that NWL engage to treat and/or dispose of sludge on their behalf and are not managed by NWL, i.e. they do so in a manner the 3rd party chooses and take on this responsibility.
F3	Quantity of sludge recycled by a third party	2021-22 value	Total tonnes dry solids (ttds)	Thousand tonnes of dry solids disposed or recycled by a third party in the financial year and will agree to 8A.7. Sludge disposed of by managed contractors (as opposed to separate 3rd party service providers) should be excluded; instead it should be reported in line F2. A managed contractor is defined as a company that is acting under NWL's direction and NWL remain responsible for the process. A 3rd party sludge service provider is a company that NWL engage to treat and/or dispose of sludge on their behalf and are not managed by NWL, i.e. they do so in a manner the 3rd party chooses and take on this responsibility.
F4	Number of contracts held to provide sludge recycling or disposal services	2021-22 value	Number	The number of contracts held as at the end of the financial year with third parties to provide sludge recycling or disposal services.
F5	Number of suppliers with contracts for sludge recycling or disposal	2021-22 value	Number	The number of different third-party suppliers that hold contracts to dispose of or recycle sludge at the end of the financial year. The company should not include its own bioresources business as a supplier.

ACHILLES INDEPENDENT ASSURANCE STATEMENT FOR GREENHOUSE GAS EMISSIONS

INDEPENDENT AUDIT OPINION

Toitū carbon programme certification

TO THE INTENDED USERS

Responsible Party:	**Northumbrian Water Limited**
Toitū Carbon Programme:	Carbon Reduce organisational technical requirements v3.1
Audit Criteria:	ISO 14064 Part 1 2018, ISO 14064 Part 3 2019.
Registered address:	Northumbria House, Abbey Road, Pity Me, Durham, DH1 5FJ
Inventory period:	01/04/2021 to 31/03/2022
GHG Assertion:	IMR_2122_Northumbrian Water Limited_CR_Org

We have reviewed the responsible party's greenhouse gas assertion.

RESPONSIBLE PARTY'S RESPONSIBILITIES

The Management of the Responsible Party is responsible for the preparation of the GHG statement in accordance with ISO 14064-1 2018 and the requirements of the stated Toitū carbon programme. This responsibility includes the design, implementation and maintenance of internal controls relevant to the preparation of a GHG statement that is free from material misstatement.

VERIFIERS' RESPONSIBILITIES

Our responsibility as verifiers is to express a verification opinion to the agreed level of assurance on the GHG statement, based on the evidence we have obtained and in accordance with the audit criteria. We conducted our verification engagement as agreed in the Contract and Engagement letter, which together define the scope, objectives, criteria and level of assurance of the verification. The International Standard ISO 14064-3 2019 requires that we comply with ethical requirements and plan and perform the validation and verification to obtain the agreed level of assurance that the GHG emissions, removals and storage in the GHG statement are free from material misstatement. Assurance is not an absolute guarantee that an audit carried out in accordance with the ISO 14064 Standards will always detect a material misstatement when it exists. Misstatements are differences or omissions of amounts or disclosures, and can arise from fraud or error. Misstatements are considered material if, individually or in the aggregate, they could reasonably be expected to influence the decisions of readers, taken on the basis of the information we audited.

GHG quantification is subject to inherent uncertainty because of incomplete scientific knowledge used to determine emissions factors and the values needed to combine emissions of different gases.

BASIS OF VERIFICATION OPINION

Our responsibility is to express an assurance opinion on the GHG statement based on the evidence we have obtained. We conducted our assurance engagement as agreed in the contract which defines the scope, objectives, criteria and level of assurance of the verification.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

VERIFICATION

We have undertaken a verification engagement relating to the Greenhouse Gas Emissions Inventory Report (the 'Inventory Report')/Emissions Inventory and Management Report of the organisation listed at the top of this statement and described in the emissions inventory report for the period stated above.

The Inventory Report provides information about the greenhouse gas emissions of the organisation for the defined measurement period and is based on historical information. This information is stated in accordance with the requirements of International Standard ISO 14064-1 2018 and the requirements of the stated Enviro-Mark Solutions Limited (trading as Toitū Envirocare) programme.

VERIFICATION STRATEGY

Verification evidence gathering procedures include:

An initial evaluation of organisational scope & boundaries, typically by interview and or desktop data review.

An initial evaluation of organisational scope & boundaries, typically by interview and or desktop data review.

A sample of site visits will typically be conducted, dependent on the industrial sector.

A comprehensive range of emission sources will be taken and typically checked for classification, completeness of data, scope & boundaries, time-periods, emission factors applied, consistency or changes to methodologies, estimations used & that adequate control procedures are in place. This will also include retrace back to source data and a full recalculation of GHG emissions.

VERIFICATION LEVEL OF ASSURANCE

Reasonable (all categories excluding AUPs)

AGREED UPON PROCEDURES

The following identifies the emissions within the reported inventory subject to verification versus AUP:

Total tCO_2e:	Total subject to AUP tCO_2e:
157,501.47	0.00

QUALIFICATIONS TO VERIFICATION OPINION

The following qualifications have been raised in relation to the verification opinion:

It was possible to verify that adequate RGGOs are pending for all imported green gas and export gas to grid. However, due to market timing it is not yet possible to provide full evidence of retirement of and imported green gas RGGOs for Ridge Road.

VERIFICATION LEVEL OF ASSURANCE

EMISSIONS - VERIFICATION REASONABLE ASSURANCE

We have obtained all the information and explanations we have required. In our opinion, the emissions, removals and storage defined in the inventory report, in all material respects:

• comply with ISO 14064 Part 1 2018 and the requirements of the stated Toitū Envirocare Toitū carbon programme; and

• provide a true and fair view of the emissions inventory of the Responsible Party for the stated inventory period.

Verified by:		**Authorised by:**	
Name:	Glenn Cargill	Name:	Stephen J Smith
Position:	Lead Verifier	Position:	Technical Reviewer
Signature:		Signature:	
Date verification audit:	3/06/2022	Date authorised:	7/06/2022

ORGANISATIONAL AUDIT REPORT FOR:

Northumbrian Water Limited

Verification firm:	Achilles Information Limited, Milton Park, 30 Western Ave, Milton, Abingdon OX14 4SH.
Lead Auditor:	Glenn Cargill
Client Contact:	Anthony Browne
Report date:	3/06/2022
Peer Reviewed by:	Stephen J Smith

AUDIT OBJECTIVES

To determine whether the organisation's GHG measurements (emissions data and calculations) and reduction(s) meet certification requirements for the Programme as detailed in the criteria and scope.

AUDIT CRITERIA AND SCOPE

The audit criteria and scope are detailed in the following table:

Criteria	ISO 14064 Part 1 2018, ISO 14064 Part 3 2019.	GHG Protocol scope 2 guidance & CAW16
GHG program	Carbon Reduce organisational technical requirements v3.1	
Audit date	31/05/2022	
Reporting year	01/04/2021 to 31/03/2022	
Base year	01/04/2019 to 31/03/2020	
Consolidation methodology	Operational control.	
Materiality threshold	5%	
Emissions factor source	Toitū emanage CAW 16	
GHG statement (certification claim)	Northumbrian Water Limited meets the requirements of Carbon Reduce certification having measured its greenhouse gas emissions in accordance with ISO 14064 Part 1 2018 and is committed to managing and reducing its emissions in respect of its operational activities of its UK organisation.	
Registered Office Address	Northumbria House, Abbey Road, Pity Me, Durham, DH1 5FJ	
Audit type	Transition (certificate renewal to new standard).	

VERIFIED LOCATION BASED EMISSIONS TOTALS

The following totals have been verified (Net is after accounting for exported energy reductions & purchased offsets):

Location based mandatory only emissions summary by category:		Units
Category 1: Direct emissions and removals	77,901.19	tCO_2e
Category 2: Indirect emissions from imported energy	71,110.65	tCO_2e
Category 3: Indirect emissions from transportation	300.03	tCO_2e
Category 4: Indirect emissions from products used by organisation	6,292.89	tCO_2e
Category 5: Indirect emissions associated with the use of products from the organisation	0.00	tCO_2e
Total gross inventory	155,604.76	**tCO_2e**
Total net inventory	130,755.96	**tCO_2e**

Location based total emissions summary by category:		Units
Category 1: Direct emissions and removals	77,901.19	tCO_2e
Category 2: Indirect emissions from imported energy	71,110.65	tCO_2e
Category 3: Indirect emissions from transportation	300.03	tCO_2e
Category 4: Indirect emissions from products used by organisation	8,189.60	tCO_2e
Category 5: Indirect emissions associated with the use of products from the organisation	**0.00**	tCO_2e
Total gross inventory	**157,501.47**	**tCO_2e**
Total net inventory	**132,652.67**	**tCO_2e**

VERIFIED MARKET BASED EMISSIONS TOTALS

The following totals have been verified:

Market based mandatory only emissions summary by category		Units
Category 1: Direct emissions and removals	44,651.49	tCO_2e
Category 2: Indirect emissions from imported energy	0.00	tCO_2e
Category 3: Indirect emissions from transportation	300.03	tCO_2e
Category 4: Indirect emissions from products used by organisation	0.00	tCO_2e
Category 5: Indirect emissions associated with the use of products from the organisation	0.00	tCO_2e
Total gross inventory	44,951.52	**tCO_2e**
Total net inventory	20,020.70	**tCO_2e**

Market based total emissions summary by category:		Units
Category 1: Direct emissions and removals	44,651.49	tCO_2e
Category 2: Indirect emissions from imported energy	0.00	tCO_2e
Category 3: Indirect emissions from transportation	300.03	tCO_2e
Category 4: Indirect emissions from products used by organisation	1,896.71	tCO_2e
Category 5: Indirect emissions associated with the use of products from the organisation	0.00	tCO_2e
Total gross inventory	**46,848.23**	**tCO_2e**
Total net inventory	**21,917.41**	**tCO_2e**

DATA QUALITY

Using our internal Data Quality Assessment tool for analysing data against completeness and assumed uncertainty an inventory "quality" can be classified as follows:

- High
- Good
- Fair
- Poor

Based upon this assessment your inventory data quality has been classified as: **GOOD**

LEVEL OF ASSURANCE PROVIDED

Based upon the verification undertaken, the following level of assurance is provided:

Reasonable (all categories excluding AUPs)

The above is based upon the following qualifications:

It was possible to verify that adequate RGGOs are pending for all imported green gas and export gas to grid. However, due to market timing it is not yet possible to provide full evidence of retirement of and imported green gas RGGOs for Ridge Road.

AGREED UPON PROCEDURES (AUP)

The following emissions within the reported inventory were excluded from the defined assurance level and were verified using the programme AUP:

Total tCO_2e:	Total to AUP tCO_2e:
157,501.47	0.00

MANDATORY REDUCTION PERFORMANCE

The following reductions have been made in the programme mandatory emissions categories, relative to the base year(s), using the programme 5 year rolling average methodology.

Reduction performance			Units
Category 1 & 2 emissions only	% reduction	**0.18**	tCO_2e
Emissions intensity: category 1,2 & all other mandatory categories.	% increase	**15.06**	tCO_2e/£m

CONCLUSION AND RECOMMENDATION

Ongoing certification to Toitū carbon programme is recommended.

-

Comments:

As required by the regulator the base year emissions 2019 20 were restated last year, following the significant methodology change between CAW13 AND CAW15. A similar process was conducted this year to CAW16. There were no material changes in reported emissions. The only difference was an increase in exported energy & associated net reductions of 125 tCO2e

NWL base their reduction strategy on net market based reporting. Emissions intensity is also not a good metric of performance as revenue can change significantly due to Regulator price control. As such a request has been made to accept this within the Carbon Reduce program, rather than gross location based.

Verification procedures:

Verification evidence gathering procedures include:

An initial evaluation of organisational scope & boundaries, typically by interview and or desktop data review.

An initial evaluation of organisational scope & boundaries, typically by interview and or desktop data review.

A sample of site visits will typically be conducted, dependent on the industrial sector.

A comprehensive range of emission sources will be taken and typically checked for classification, completeness of data, scope & boundaries, time-periods, emission factors applied, consistency or changes to methodologies, estimations used & that adequate control procedures are in place. This will also include retrace back to source data and a full recalculation of GHG emissions.

Agreed Upon Procedure:

Emissions sources are excluded from the assurance statement.

Verification activities are as defined in the appropriate AUP. A copy of which can be found in the guidance section of emanage.

Notes:

The detailed audit findings and calculations given in the Verification Plan and Working Papers associated with this audit contain proprietary verification methodologies and remain confidential.

The audit is based upon sampling and as such nonconformities may exist that have not yet been identified.

We have reviewed the company's GHG emissions inventory for the period. The inventory is based on historical information which is stated in accordance with the requirements of ISO 14064 Part 1 and the scheme Technical Requirements.

The scope of the review was limited to personnel interview, analytical review procedures applied to GHG emissions data, and review of the input of data into the emissions inventory.

A **non-conformance (NCR)** indicates that the auditor has found a non-conformance with scheme Technical Requirements (audit criteria) and requires you to take the appropriate corrective action and provide evidence of this correction within 10 working days. This may require resubmission of an updated Emissions Inventory and Management report.

A **minor non-conformance (mNCR**) which the auditor has found which is not material to the outcome of the inventory, but to which a failure to address in the preparation of future inventories could lead to a major Non-Conformance (NCR).

Observations made by your auditor are strongly advised but the actions are not required for the organisation to be recommended for certification.

Neither Toitū Envirocare nor the auditor has any interest in the organisation, other than in our capacity as assurance providers. We have not carried out any work with this business prior to this review other than conducting the previous verification

Toitū carbon programmes boundary is defined as all Category 1 and 2 emissions, Category 3 emissions associated with business travel and freight paid for by the organisation, Category 4 emissions associated with waste disposed of by the organisation, and transmissions and distribution of electricity and natural gas

Any correspondence regarding this audit report should be directed to your Lead Auditor.

A copy of this report has been provided to the nominated client contact.

This report has been prepared solely for the use of the organisation and Toitū Envirocare as part of an application for Toitū carbonreduce programme certification. It may be relied on solely by the organisation and Toitū Envirocare for that purpose only. Toitū Envirocare does not accept or assume any responsibility to any person other than the organisation in relation to the statements or findings expressed or implied in this report.

Responsibilities:

The responsible party is responsible for the preparation and fair presentation of the GHG statement in accordance with the criteria. The verifier is responsible for expressing an opinion on the GHG statement based on the verification activities undertaken.

GREENHOUSE GAS EMISSIONS INVENTORY AND MANAGEMENT REPORT

Carbon Reduce programme

Prepared in accordance with ISO 14064-1:2018 and the Technical Requirements of the Programme

Northumbrian Water Limited

Prepared by (lead author): Anthony Browne

Dated: 02 June 2022

Verification status: **Reasonable (all categories excluding AUPs)**

Measurement period: 01 April 2021 to 31 March 2022

Base year period: 01 April 2019 to 31 March 2020

Approved for release by:

Anthony Browne

DISCLAIMER

The template has been provided by Enviro-Mark Solutions Limited (trading as Toitū Envirocare). While every effort has been made to ensure the template is consistent with the requirements of ISO 14064-1:2018, Toitū Envirocare does not accept any responsibility whether in contract, tort, equity or otherwise for any action taken, or reliance placed on it, or for any error or omission from this report. The template should not be altered (i.e. the black text); doing so may invalidate the organisation's claim that its inventory is compliant with the ISO 14064-1:2018 standard.

This work shall not be used for the purpose of obtaining emissions units, allowances, or carbon credits from two or more different sources in relation to the same emissions reductions, or for the purpose of offering for sale carbon credits which have been previously sold.

The consolidation approach chosen for the greenhouse gas inventory should not be used to make decisions related to the application of employment or taxation law.

This report shall not be used to make public greenhouse gas assertions without independent verification and issue of an assurance statement by Toitū Envirocare.

AVAILABILITY

Dissemination to sector regulator as part of annual review process.

REPORT STRUCTURE

The Inventory Summary contains a high-level summary of this year's results and from year 2 onwards a brief comparison to historical inventories.

Chapter 1, the Emissions Inventory Report, includes the inventory details and forms the measure step of the organisation's application for Programme certification. The inventory is a complete and accurate quantification of the amount of GHG emissions and removals that can be directly attributed to the organisation's operations within the declared boundary and scope for the specified reporting period. The inventory has been prepared in accordance with the requirements of the Programme[1], which is based on the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (2004) and ISO 14064-1:2018 Specification with Guidance at the Organization Level for Quantification and Reporting of Greenhouse Gas Emissions and Removals[2]. Where relevant, the inventory is aligned with industry or sector best practice for emissions measurement and reporting.

Chapter 2, the reduction plan and progress report, forms the manage step part of the organisation's application for Programme certification.

See Appendix 1 and the related Spreadsheet for detailed emissions inventory results, including a breakdown of emissions by source and sink, emissions by greenhouse gas type, and non-biogenic and bio-genic emissions. Appendix 1 also contains detailed context on the inventory boundaries, inclusions and exclusions, calculation methodology, liabilities, and supplementary results.

This overall report provides emissions information that is of interest to most users but must be read in conjunction with the inventory workbook for covering all of the requirements of ISO 14064-1:2018.

[1] Programme refers to the Toitū Carbon Reduce and the Toitū Carbon Zero programmes.
[2] Throughout this document 'GHG Protocol' means the *GHG Protocol Corporate Accounting and Reporting Standard* and 'ISO 14064-1:2018' means the international standard *Specification with Guidance at the Organizational Level for Quantification and Reporting of Greenhouse Gas Emissions and Removals*.

CONTENTS

TABLES

FIGURES

EXECUTIVE SUMMARY

This is the annual greenhouse gas (GHG) emissions inventory and management report for Northumbrian Water Limited covering the measurement period 01 April 2021 to 31 March 2022.[3]

This is the annual greenhouse gas (GHG) emissions inventory and management report for Northumbrian Water Limited covering the measurement period 01 April 2021 to 31 March 2022. The report covers only Northumbrian Water's appointed business – these are the activities necessarily undertaken by Northumbrian Water to fulfil the function and duties of a water and sewerage undertaker under the Water Industry Act 1991.

Table 1: Inventory summary

Category (ISO 14064-1:2018)	**Scopes (ISO 14064-1:2006)**	**2020**	**2021**	**2022**
Category 1: Direct emissions	Scope 1	65,960.14	80,468.69	77,901.19
Category 2: Indirect emissions from imported energy	Scope 2	86,882.07	75,396.72	71,110.65
Category 3: Indirect emissions from transportation	Scope 3	913.18	227.25	300.03
Category 4: Indirect emissions from products used by organisation		9,550.61	8,545.17	8,189.60
Category 5: Indirect emissions associated with the use of products from the organisation		0.00	0.00	0.00
Category 6: Indirect emissions from other sources		0.00	0.00	0.00
Total direct emissions		**65,960.14**	**80,468.69**	**77,901.19**
Total indirect emissions		**97,345.86**	**84,169.14**	**79,600.28**
Total gross emissions		**163,306.00**	**164,637.83**	**157,501.47**

[3] Throughout this document "emissions" means "GHG emissions".

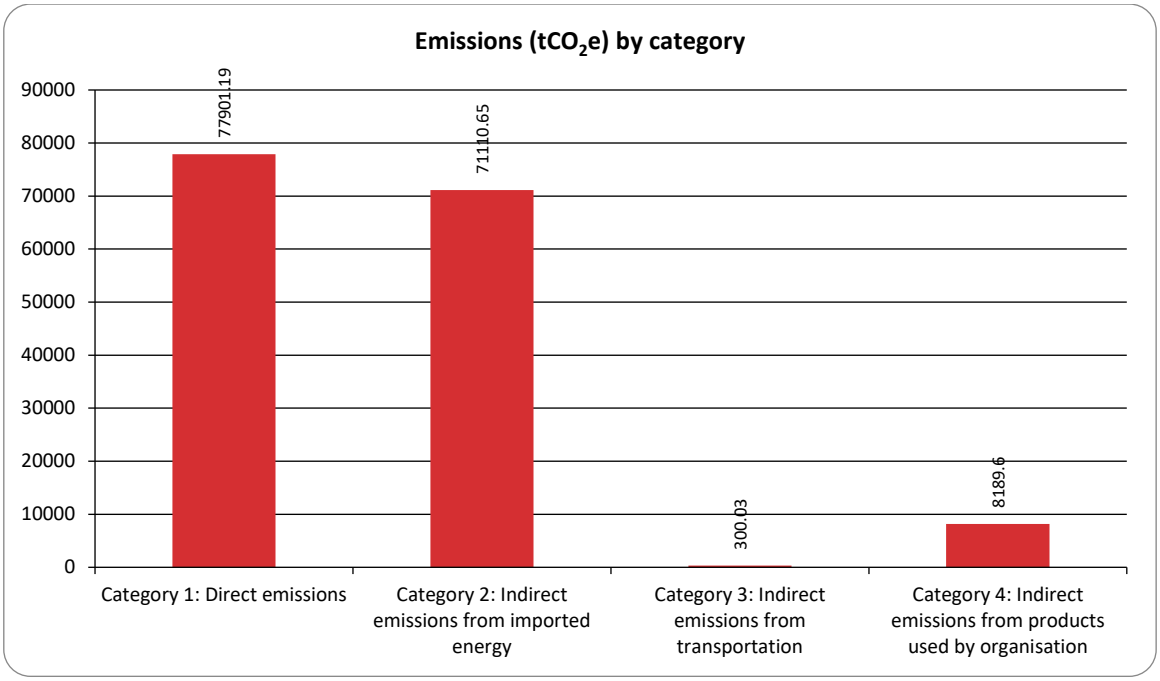

Figure 1: Emissions (tCO_2e) by Category for this measurement period

CHAPTER 1: EMISSIONS INVENTORY REPORT

1.1. INTRODUCTION

This report is the annual greenhouse gas (GHG) emissions inventory and management report for Northumbrian Water Limited.

The purpose of this report is to measure and report our GHG emissions in accordance with Ofwat's requirements for the UK Water Sector. This report is an important element of Northumbrian Water's Net Zero 2027 commitment.

The inventory report and any GHG assertions are expected to be verified by a Programme-approved, third-party verifier. The level of assurance is reported in a separate Assurance Statement provided to the directors of the certification entity.

1.2. EMISSIONS INVENTORY RESULTS

Table 2: GHG emissions inventory summary for this measurement period

Measurement period: 01 April 2021 to 31 March 2022.

Category	Toitū carbon mandatory boundary (tCO_2e)	Additional emissions (tCO_2e)	Total emissions (tCO_2e)
Category 1: Direct emissions	77,901.19 Direct emissions from burning fossil fuels, Process & Fugitive emissions, Transport: Company owned or leased vehicles	0.00	77,901.19
Category 2: Indirect emissions from imported energy	71,110.65 Purchased electricity	0.00	71,110.65
Category 3: Indirect emissions from transportation	300.03 Business travel on public transport and private vehicles	0.00	300.03
Category 4: Indirect emissions from products used by organisation	6,292.89 Purchased electricity - Transmission and distribution	1896.71 Outsourced activities (If not included in scope 1 & 2)	8,189.60
Category 5: Indirect emissions associated with the use of products from the organisation	0.00	0.00	0.00
Category 6: Indirect emissions from other sources	0.00	0.00	0.00
Total direct emissions	**77,901.19**	**0.00**	**77,901.19**
Total indirect emissions	**77,703.57**	**1896.71**	**79,600.28**
Total gross emissions	**155,604.76**	**1896.71**	**157,501.47**
Category 1 direct removals	0.00	0.00	0.00
Certified renewable electricity certificates	0.00	0.00	0.00

Category	Toitū carbon mandatory boundary (tCO_2e)	Additional emissions (tCO_2e)	Total emissions (tCO_2e)
Purchased emission reductions	0.00	0.00	0.00
Total net emissions	**155,604.76**	**1896.71**	**157,501.47**
Emissions intensity		**Mandatory emissions**	**Total emissions**
Operating revenue (gross tCO_2e / £Millions)		199.47	201.90

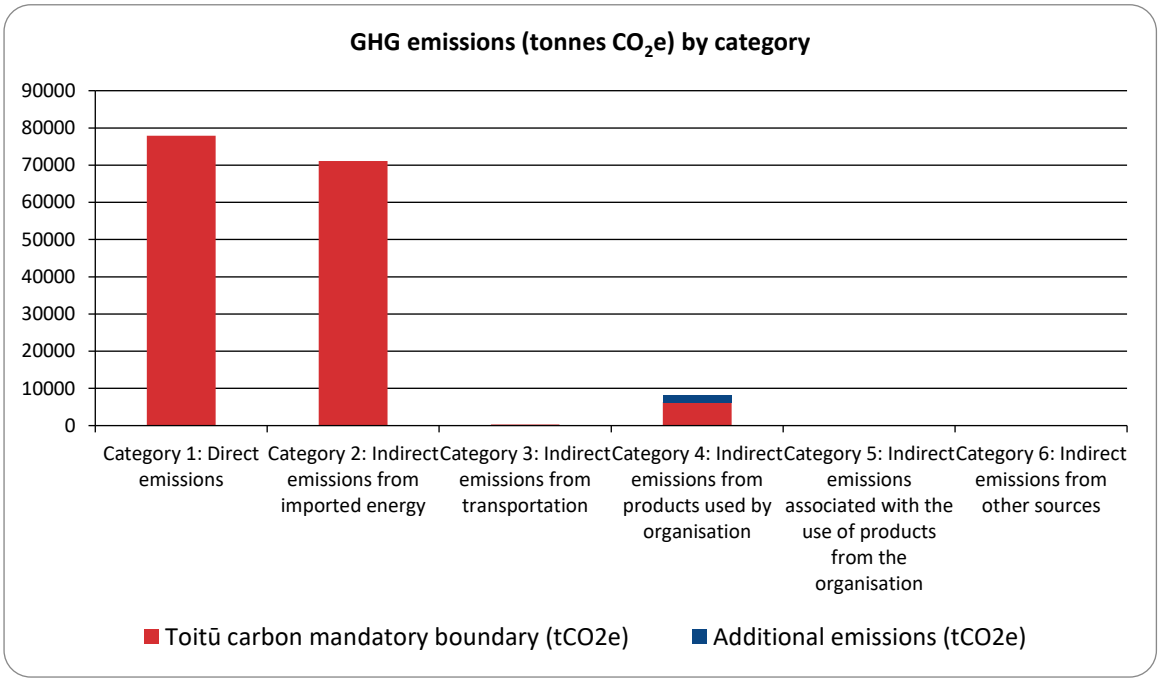

Figure 2: GHG emissions (tonnes CO_2e) by category

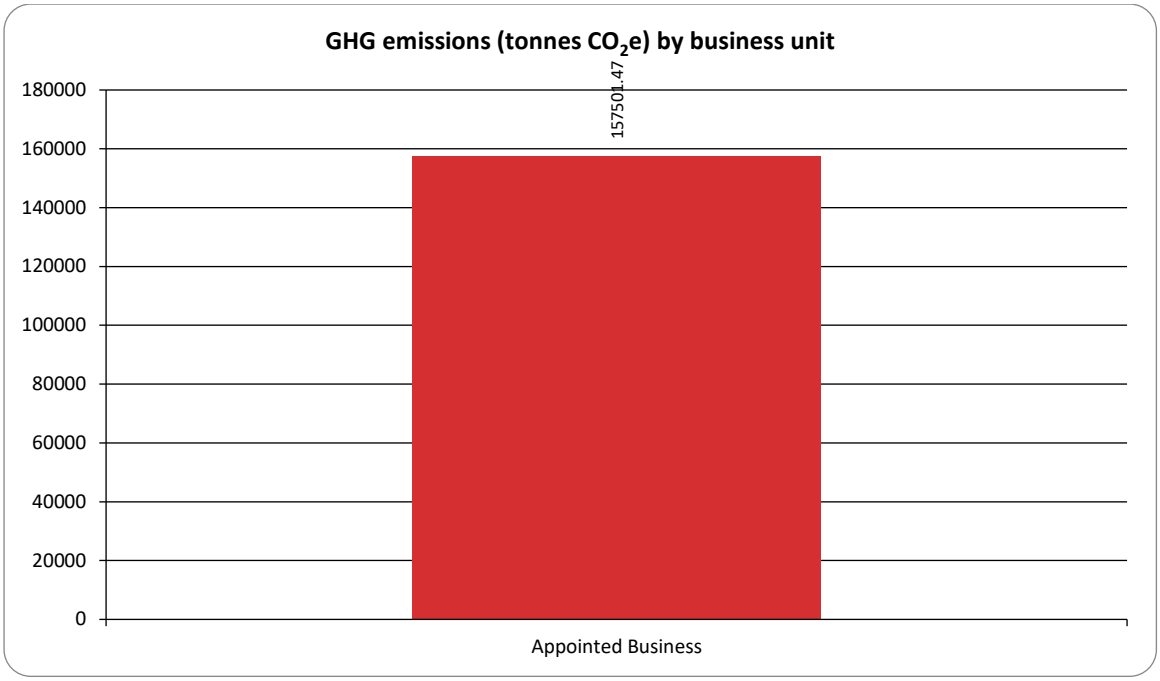

Figure 3: GHG emissions (tonnes CO_2e) by business unit

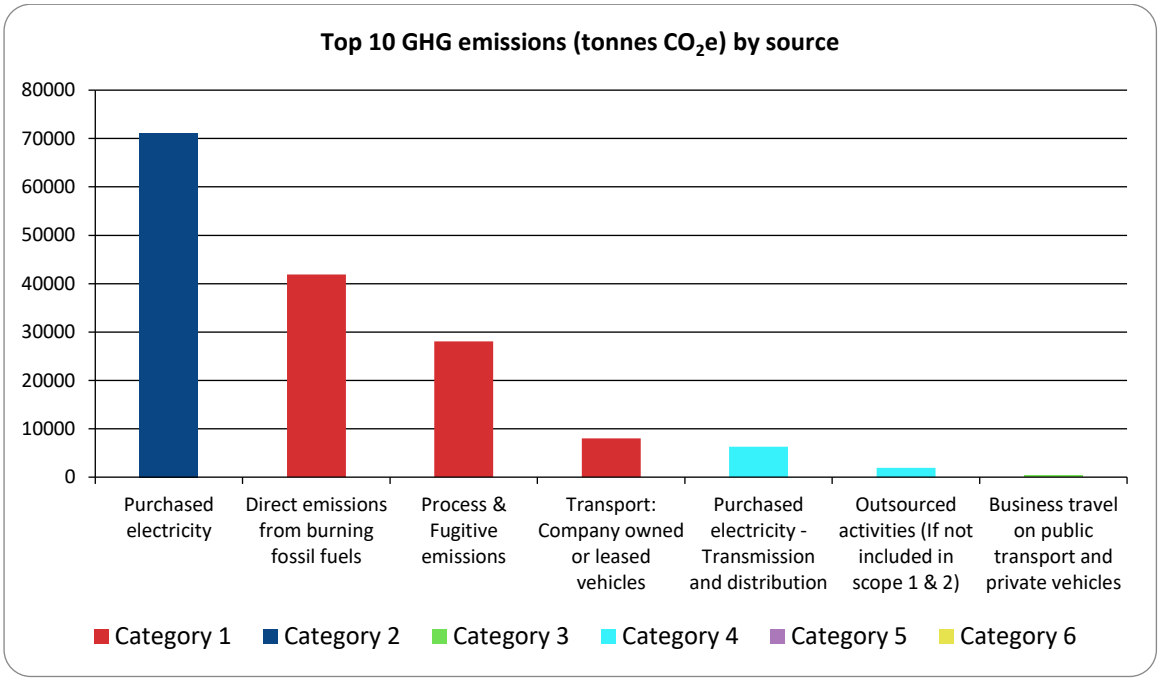

Figure 4: Top 10 GHG emissions (tonnes CO_2e) by source

1.3. ORGANISATIONAL CONTEXT

1.3.1. Organisation description

NWL holds the appointment under the Water Industry Act 1991 as water undertakers for the Northumbrian Area and the Essex and Suffolk Area. In the Northumbrian Area, NWL is also holds the appointment as sewerage undertaker.

The Northumbrian Area operations cover the urban conurbations of Tyneside, Wearside and Teesside to the sparsely populated rural districts of Durham and Northumberland. The Essex and Suffolk Area covers two geographically distinct areas, one serving parts of Norfolk and Suffolk, and the other serving parts of Essex and Greater London – in the Essex and Suffolk area, NWL operates as Essex and Suffolk Water.

NWL supplies water and sewerage services to just under 4.4 million people. In delivering its water and sewage undertaking, NWL operates the below assets:

• 53 water treatment works

• 394 water pumping stations

• 341 water service reservoirs

• 26,200.20 km water mains

• 410 sewage treatment works

• 1,007 sewage pumping stations

• 30,106 km sewers

NWL has made a commitment within its regulated business plan to reduce operational emissions against a 2019/20 baseline by 9110 tCO_2e and to achieve net zero operational emissions by the end of the 2027/28 reporting year.

Commitment to certification

2014 was the hottest year on record in the UK and the ten warmest years on record have occurred since 1990. In the last 50 years more winter rainfall has fallen in heavy events. This trend towards more rainfall falling in heavy events is expected to continue, and average winter rainfall may increase. The picture for summer rainfall is less clear. As the climate changes UK summer temperatures may increase by up to 4°C by the 2080s.

In the UK, many people may experience climate change through its effects on water, and especially through floods and droughts. We expect more, bigger floods particularly during winter. Summer flash flooding may become more common. Average summer river flows may decrease across the UK, leading to reduced water availability and lower river water quality.

Specifically, during the business planning process, NWL's customers told the company that it must ensure resilience in the form of a strong, reliable and affordable service that will stand the test of time, cope with change and bounce back from difficult situations. As NWL manages a large and complex asset base where a failure could have significant impacts on our customers and the environment our resilience framework specifically addresses the additional stresses caused by climate change.

As an energy intensive business, we have an important contribution to make in tackling the causes of climate change. We can make a real difference through measures such as greater water efficiency, buying green energy as well as generating renewable energy ourselves, planting trees, restoring peatland and working with our supply chain.

NWL has made a commitment within its regulated business plan to reduce emissions against a 2019/20 baseline by 9,110 tCO_2e by 2024/25. The reduction is on a net operational emissions and market-based approach. The reduction must come from actions that NWL takes (i.e. reductions from reduction Grid Energy emissions factors do not contribute towards NWL's targets).

In addition to the above regulated commitment, the company has committed to achieving net zero emissions on a market-based approach by the end of the 2027/28 reporting year.

Additionally, NWL is one of three companies sponsoring the WaterUK sector wide commitment to deliver a net-zero water and sewage sector in England by 2030 (further details are available at water.org.uk).

GHG Reporting

This report is sued by management to identify and improve performance. This report is also provided to our regulator as part of the Annual Performance Reporting requirements and is available to the public in order that our customers receive a transparent and validated emissions inventory.

Climate Change Impacts

Climate change has multiple effects on the Water Sector, the two most significant impacts are:

• Water scarcity and droughts have a long-term impact on the sector's ability to supply potable water.

• Heavy rainfall events have negative effects on raw water quality (which impacts potable water supply) and on the sewage system which can lead to pollution events and/or increase the cost of treatment.

Parent Company Targets

For the reporting period 2021-2022, four goals have been prioritised for our Group-parent as part of its Group Sustainability Framework:

1. Take action on climate change;

2. Offer customers sustainable products and invest in and embrace innovation to achieve transformational impacts;

3. Create great places to work; and

4. Take all steps to protect employees and support communities and other stakeholders through the pandemic.

This report is a key component of NWL satisfying point 1 above.

1.3.2. Statement of intent

This inventory forms part of the organisation's commitment to gain Toitū Carbon Reduce certification. The intended uses of this inventory are:

Intended use and users

Northumbrian Water Limited intends to use the results of this and future emission evaluations as:

- A tool for engagement with its customers;
- To support its business planning process for the PR24 price review; and
- part of its Annual Performance Reporting to the Water Industry Regulator, Ofwat.

Other schemes and requirements

Northumbrian Water Limited intends to use the results of this and future emission evaluations as part of its Annual Performance Reporting to the Water Industry Regulator, Ofwat.

1.3.3. Person responsible

Anthony Browne, Energy & Decarbonisation Manager is responsible for overall emission inventory measurement and reduction performance, as well as reporting results to top management. Anthony Browne, Energy & Decarbonisation Manager has the authority to represent top management and has financial authority to authorise budget for the Programme, including Management projects and any Mitigation objectives.

State any other people/entities Programme

Dr Anthony Browne, Energy and Decarbonisation Manager is responsible for GHG reporting and reductions at NWL. Anthony holds an engineering Doctorate in low carbon power generation and has a decade of experience in energy and net zero programme management.

Top management commitment

NWL CEO, Heidi Mottram, is one of three industry figures to sponsor the commitment to deliver a net-zero water and sewage sector in England by 2030 (further details are available at water.org.uk). Group Commercial Director, Graham Southall, holds the responsibility for delivering NWL's AMP7 commitments and the wider group commitment for the group of companies achieving net zero emissions on a market-based approach by the end of the 2027/28.

Management involvement

Management from across the following business units provide data which is used to compile the emissions inventory:

- Operations;
- Finance;
- Procurement;
- Fleet
- Regulation.

1.3.4. Reporting period

Base year measurement period: 01 April 2019 to 31 March 2020

The base year is April 2019 to March 20. This is the final year of the Asset Management Period known as AMP6. The final year of AMP6 is the most relevant baseline for performance measurement for the following 5-year Asset Management Period (AMP7) which runs from 01 April 2020 to 31 March 2025.

Measurement period of this report: 01 April 2021 to 31 March 2022

Annual reporting.

Aligned with UK Water Industry regulatory reporting cycle.

1.3.5. Organisational boundary and consolidation approach

An operational control consolidation approach was used to account for emissions.[4]

Organisational boundaries were set with reference to the methodology described in the GHG Protocol and ISO 14064-1:2018 standards.

Justification of consolidation approach

An operational control consolidation approach was used to account for the emissions of Northumbrian Water Limited.

In addition to the operational control consolidation approach. The emissions boundary is limited to the appointed business only. The appointed business refers to those assets and activities regulated under the Water Industry Act 1991. This is an important distinction due to the use of the reported emissions being included in Northumbrian Water Limited's regulatory submission to Ofwat.

Organisational structure

Figure 5 shows what has been included in the context of the overall structure.

Organisational structure showing Northumbrian Water Limited and its subsidiaries.

[4]control: the organisation accounts for all GHG emissions and/or removals from facilities over which it has financial or operational control. equity share: the organisation accounts for its portion of GHG emissions and/or removals from respective facilities.

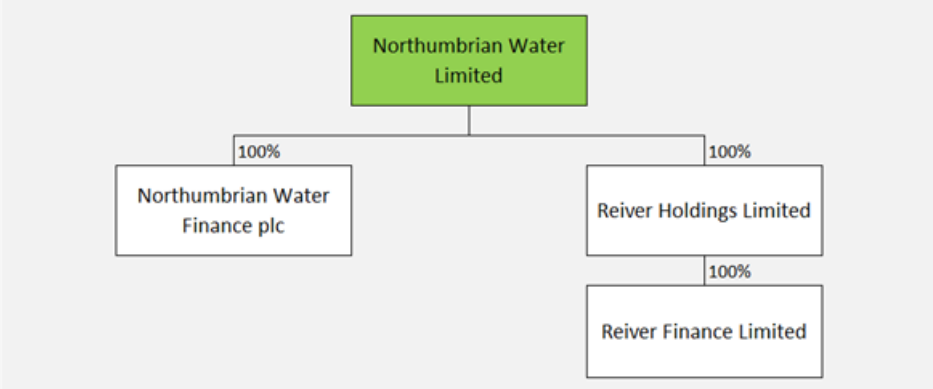

Figure 5: Organisational structure

Table 3. Brief description of business units, sites and locations included in this emissions inventory

Company/Business unit/Facility	Physical location	Description
Northumbrian Water Limited	The Northumbrian Area operations cover the urban conurbations of Tyneside, Wearside and Teesside to the sparsely populated rural districts of Durham and Northumberland. The Essex and Suffolk Area covers two geographically distinct areas, one serving parts of Norfolk and Suffolk, and the other serving parts of Essex and Greater London – in the Essex and Suffolk area, NWL operates as Essex and Suffolk Water.	NWL operates the below assets: • 53 water treatment works • 394 water pumping stations • 341 water service reservoirs • 26,200.20 km water mains • 410 sewage treatment works • 1,007 sewage pumping stations • 30,106 km sewers

1.3.6. Excluded business units

- Northumbrian Water Finance plc - Non-appointed, and administrative so no emissions included in scope;
- Reiver Finance Limited - Non-appointed, and administrative so no emissions included in scope;
- Reiver Holdings Limited - Non-appointed, and administrative so no emissions included in scope.

CHAPTER 2: EMISSIONS MANAGEMENT AND REDUCTION REPORT

2.1. EMISSIONS REDUCTION RESULTS

Northumbrian Water's target net reduction for the reporting period against a 2019/20 baseline is 5,602tCO_2e on a market-based approach. NWL has achieved a reduction of 46,710 - significantly outperforming this target.

Table 4: Comparison of historical GHG inventories

Category	2020	2021	2022
Category 1: Direct emissions	65,960.14	80,468.69	77,901.19
Category 2: Indirect emissions from imported energy	86,882.07	75,396.72	71,110.65
Category 3: Indirect emissions from transportation	913.18	227.25	300.03
Category 4: Indirect emissions from products used by organisation	9,550.61	8,545.17	8,189.60
Category 5: Indirect emissions associated with the use of products from the organisation	0.00	0.00	0.00
Category 6: Indirect emissions from other sources	0.00	0.00	0.00
Total direct emissions	**65,960.14**	**80,468.69**	**77,901.19**
Total indirect emissions	**97,345.86**	**84,169.14**	**79,600.28**
Total gross emissions	**163,306.00**	**164,637.83**	**157,501.47**
Category 1 direct removals	0.00	0.00	0.00
Certified renewable electricity certificates	0.00	0.00	0.00
Purchased emission reductions	0.00	0.00	0.00
Total net emissions	**163,306.00**	**164,637.83**	**157,501.47**
Emissions intensity			
Operating revenue (gross mandatory tCO_2e / £Millions)	176.81	211.47	199.47

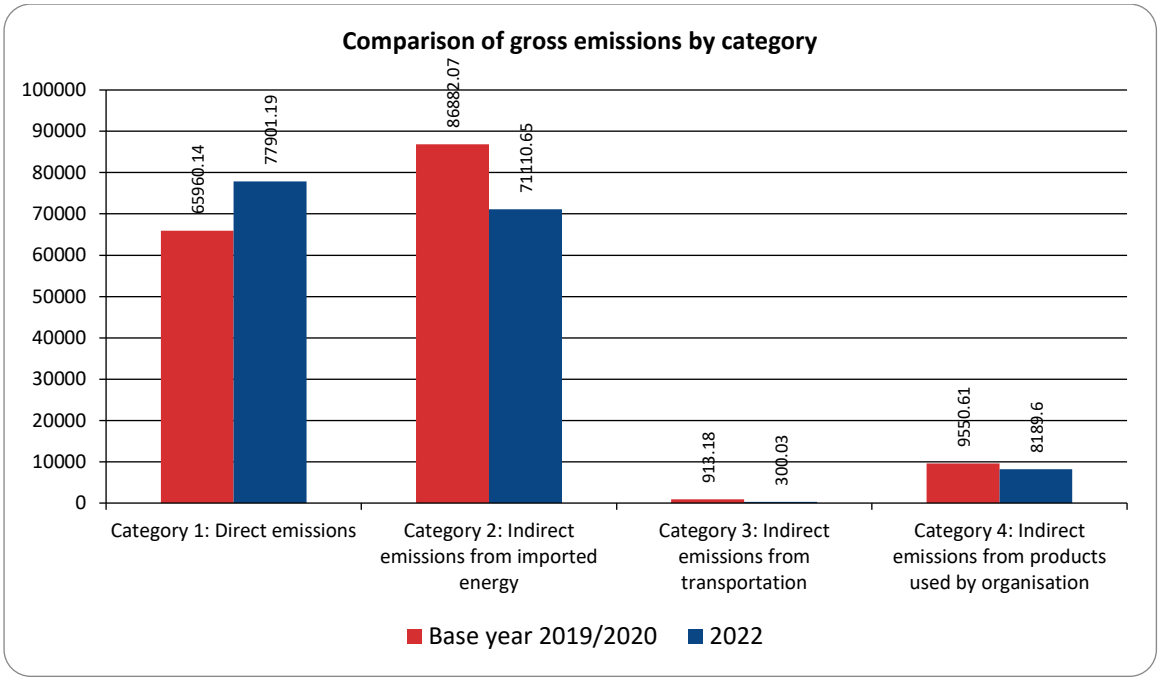

Figure 6: Comparison of gross emissions by category between the reporting periods

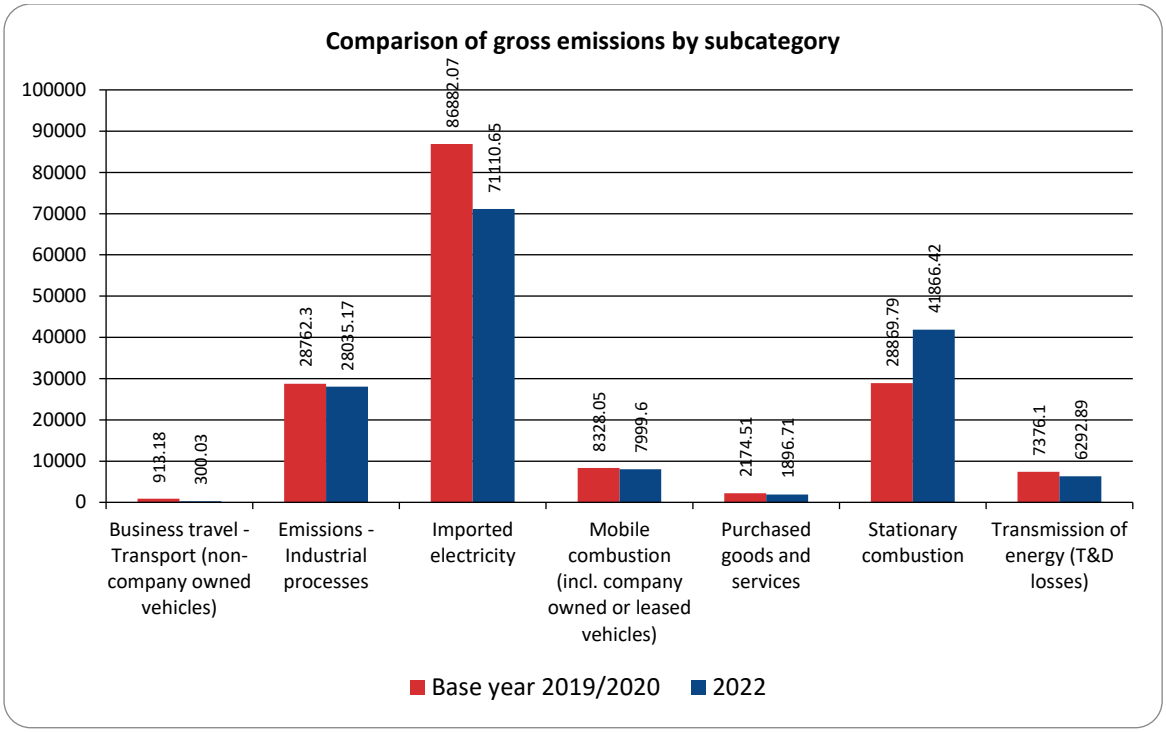

Figure 7: Comparison of gross emissions by subcategory between the reporting periods

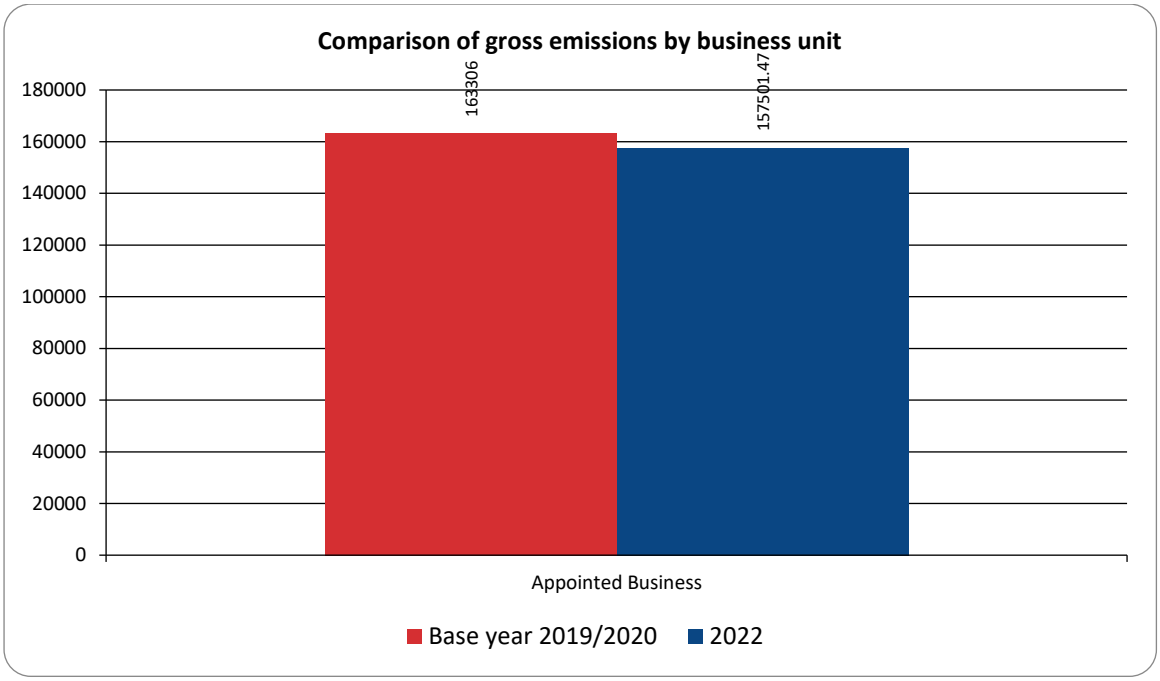

Figure 8: Comparison of gross emissions by business unit between the reporting periods

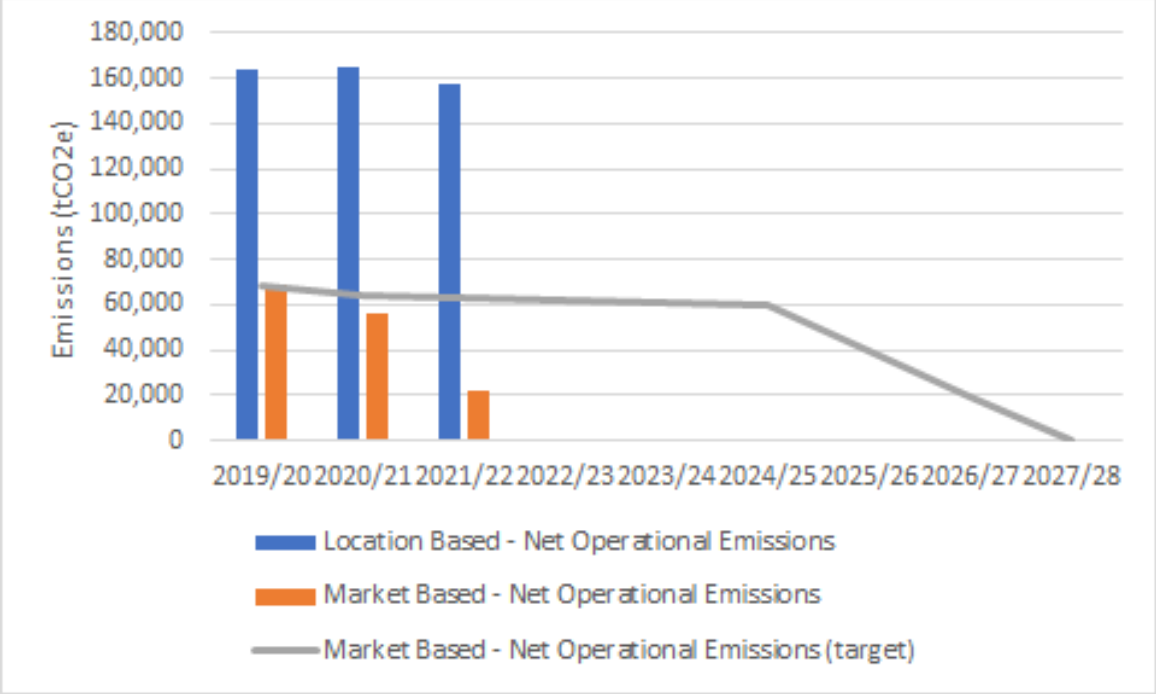

Figure 9: Performance against target since base year

Table 5. Performance against plan

Target name	Baseline period	Target date	Type of target (intensity or absolute)	Current performance (tCO_2e)	Current performance (%)	Comments
AMP7 Annual Target Y1	2019/20	2020/21	Absolute	55,904	287%	Ahead of in AMP Targets
AMP7 Annual Target Y2	2019/20	2021/22	Absolute	21,917	834%	Ahead of in AMP Targets
AMP7 Annual Target Y3	2019/20	2022/23	Absolute	21,917	690%	Ahead of in AMP Targets
AMP7 Annual Target Y4	2019/20	2023/24	Absolute	21,917	588%	Ahead of in AMP Targets
AMP7 Annual Target Y5	2019/20	2024/25	Absolute	21,917	513%	Ahead of in AMP Targets
Net Zero Target Date	NA	2027/28	Absolute	21,917	32%	Significant reductions required to achieve Net Zero.

2.2. SIGNIFICANT EMISSIONS SOURCES

Significant sources

Emissions sources that can be controlled by NWL are:

- Grid Electricity
- Grid Transmission and Distribution
- Natural Gas
- Process Emissions
- Company Transport
- Private Transport
- Other Fuels

Emissions where NWL has limited control are:

- Gas Oil
- Outsourced Emissions

Activities responsible for generating significant emissions

Grid Electricity is used for both pumping and treatment of water and wastewater. Water production processes generally rely on gravitation of water through a series of processes, where the topography of the raw water source doesn't provide sufficient gravitational pressure, the water must be pumped. Other processes relating to Water Treatment, such as UV treatment and centrifuging of sludges require electrical input. Once treated the water will often also need to be pumped to overcome head losses to ensure adequate pressure at customer properties. Waste water treatment uses electricity to pump the wastes to treatment works and also for treatment processes including aeration and UV treatment. NWL aims to be energy efficient – both using efficient assets and prioritising water production at low energy sites. Relative to the baseline year, electricity demand has reduced by approximately 5GWh.

Natural Gas is used in boilers and CHPs to generate electricity and head used in the treatment of sewage sludges. The heat is used to pasteurise the sludges to enhance energy recovery in the form of biogas. Natural Gas consumption has increased this year relative to the baseline, however this has been partially offset by increased biomethane export and the use of Green Gas.

Process emissions are the emissions evolved from Water and Waste Water treatment processes. Notably, Waste Water evolves various greenhouse gases throughout the process (from disposal to final return to the environment).

NWL's transport activity is diverse. The largest vehicles are sludge tankers which transport sludges to the main treatment sites from remote works. Mid sized commercial vehicles are used by operational colleagues across the business. As the business has sites from the Scottish border down to the river Thames staff routinely use private and public transport in discharging their duties.

Other fuels: mainly includes propane which is used for improving the calorific value of biomethane before it is injected into the national gas grid.

NWL doesn't store HFCs, PFCs or SF_6 for use. HFCs and PFCs do exist in domestic refrigeration and air conditioning units – these are *de minimis* and managed through normal operation and disposal procedures/regulations, and NWL does not service this equipment itself. The company does not use SF_6, two key electrical contractors complete any re-gassing of electrical equipment on NWL's behalf.

Generally, the data used is detailed and well documented. Notably the Grid Electricity, Biogas Use and natural gas use are calculated using external data sets which are subject to external audit by other parties such as Ofgem. The emissions associated with outsource operators are provided by key contractors in un-validated form.

Influences over the activities

Population growth within NWL's operating area will have a natural inflationary pressure on emissions - at current rates of performance improvement this inflation is offset by the interventions being implemented.

Operational changes driven by tighter legislation may mandate more energy-intensive processes, leading to increased emissions.

Current energy prices have improved the business case for onsite renewable energy systems which contribute to NWL's decarbonisation programme.

Significant sources that cannot be influenced

Process emissions are the emissions evolved from Water and Waste Water treatment processes. Notably, Waste Water evolves various greenhouse gases throughout the process (from disposal to final return to the environment). The magnitude and make up of these emissions is currently estimated using the industry standard approach - further knowledge is required to validate the scale of these emissions and to identify the interventions that reduce these emissions. Northumbrian Water and the wider sector are currently undertaking research to address this issue.

2.3. EMISSIONS REDUCTION TARGETS

The organisation is committed to managing and reducing its emissions in accordance with the Programme requirements. Table 6 provides details of the emission reduction targets to be implemented. These are 'SMART' targets (specific, measurable, achievable, realistic, and time-constrained).

NWL has made a commitment within its regulated business plan to reduce emissions against a 2019/20 baseline as given in the Targets table, an estimate is made of intensity values that would result from achieving these target levels.

The company has committed to achieving net zero emissions on a market-based approach by the end of the 2027/28 reporting year and NWL is one of three companies sponsoring the WaterUK sector wide commitment to deliver a net-zero water and sewage sector in England by 2030.

Current targets are on Market Based Net Operational Emissions calculated using the industry standard methodology. Northumbrian Water's target net reduction for the reporting period against a 2019/20 baseline is 5,602tCO_2e on a market-based approach. NWL has achieved a reduction of 46,710 - significantly outperforming this target.

Using location-based reporting NWL's emissions have reduced from 147,700tCO_2e in the baseline year to 132,653tCO_2e for the reporting year.

Table 6. Emission reduction targets

Target name	Baseline period	Target date	Type of target (intensity or absolute)	Categories covered	Target		KPI	Responsibility	Rationale
AMP7 Annual Target Y1	2019/20	2020/21	Absolute	Scope 1, Scope 2 and Limited Scope 3 (industry standard)	4,433	t CO_2e reduction vs baseline	Net Operational Emissions (market based)	Whole company (managed by A. Browne)	Ambitious but attainable target within business plan.
AMP7 Annual Target Y2	2019/20	2021/22	Absolute	Scope 1, Scope 2 and Limited Scope 3 (industry standard)	5,602	t CO_2e reduction vs baseline	Net Operational Emissions (market based)	Whole company (managed by A. Browne)	Ambitious but attainable target within business plan.
AMP7 Annual Target Y3	2019/20	2022/23	Absolute	Scope 1, Scope 2 and Limited Scope 3 (industry standard)	6,771	t CO_2e reduction vs baseline	Net Operational Emissions (market based)	Whole company (managed by A. Browne)	Ambitious but attainable target within business plan.
AMP7 Annual Target Y4	2019/20	2023/24	Absolute	Scope 1, Scope 2 and Limited Scope 3 (industry standard)	7,941	t CO_2e reduction vs baseline	Net Operational Emissions (market based)	Whole company (managed by A. Browne)	Ambitious but attainable target within business plan.
AMP7 Annual Target Y5	2019/20	2024/25	Absolute	Scope 1, Scope 2 and Limited Scope 3 (industry standard)	9,110	t CO_2e reduction vs baseline	Net Operational Emissions (market based)	Whole company (managed by A. Browne)	Ambitious but attainable target within business plan.
Net Zero Target Date	NA	2027/28	Absolute	Scope 1, Scope 2 and Limited Scope 3 (industry standard)	0	operational emissions (as measured by current UKWIR methodology)	Net Operational Emissions (market based)	Whole company (managed by A. Browne)	Ambitious but attainable target - ahead of UK sector.

2.4. EMISSIONS REDUCTION PROJECTS

In order to achieve the reduction targets identified in Table 6, specific projects have been identified to achieve these targets, and are detailed in Table 7 below.

Table 7. Projects to reduce emissions

Objective	Project	Responsibility	Completion date	Potential co-benefits	Potential unintended consequences	Actions to minimise unintended consequence
Increased renewable electricity generation	Lumley Solar	Andy Downer (Project Manager) and Anthony Browne (Energy & Decarbonisation)	1/01/2022	Biodiversity gain, increased power resilience, reduced operational costs	Use of agricultural land, visual impact	Considered site selection, visual impact mitigation, site restoration
Increased renewable electricity generation	Sedgeletch Solar	Andy Downer (Project Manager) and Anthony Browne (Energy & Decarbonisation)	1/07/2022	Biodiversity gain, increased power resilience, reduced operational costs	Visual impact	Considered site selection, visual impact mitigation, site restoration
Increased renewable electricity generation	Aycliffe Solar	Andy Downer (Project Manager) and Anthony Browne (Energy & Decarbonisation)	1/08/2022	Biodiversity gain, increased power resilience, reduced operational costs	Visual impact	Considered site selection, visual impact mitigation, site restoration
Increased renewable electricity generation	Billingham Solar	Andy Downer (Project Manager) and Anthony Browne (Energy & Decarbonisation)	1/09/2022	Biodiversity gain, increased power resilience, reduced operational costs	Visual impact	Considered site selection, visual impact mitigation, site restoration
Increased renewable electricity generation	Blyth Solar	Andy Downer (Project Manager) and Anthony Browne (Energy & Decarbonisation)	1/10/2022	Biodiversity gain, increased power resilience, reduced operational costs	Visual impact	Considered site selection, visual impact mitigation, site restoration
Increased renewable electricity generation	Broken Scar Solar	Andy Downer (Project Manager) and Anthony Browne (Energy & Decarbonisation)	1/11/2022	Biodiversity gain, increased power resilience, reduced operational costs	Use of agricultural land, visual impact	Considered site selection, visual impact mitigation, site restoration
Increased renewable electricity generation	Hanningfield Solar	Anthony Browne (Energy & Decarbonisation)	1/04/2023	Biodiversity gain, increased power resilience, reduced operational costs	Use of agricultural land, visual impact	Considered site selection, visual impact mitigation, site restoration

Objective	Project	Responsibility	Completion date	Potential co-benefits	Potential unintended consequences	Actions to minimise unintended consequence
Increased renewable electricity generation	Layer Solar	Anthony Browne (Energy & Decarbonisation)	1/04/2023	Biodiversity gain, increased power resilience, reduced operational costs	Use of agricultural land, visual impact	Considered site selection, visual impact mitigation, site restoration
Increased renewable electricity generation	Seaton Carew Wind	Anthony Browne (Energy & Decarbonisation)	2/04/2023	Biodiversity gain, increased power resilience, reduced operational costs	Use of agricultural land, visual impact	Considered site selection, visual impact mitigation, site restoration
Reduced/Optimised Natural Gas Consumption	Strategic control of Advanced Anaerobic Digestion	Harry Laing (Newcastle University KTP) and Anthony Browne (Energy & Decarbonisation)	1/06/2023	Reduced costs, better operational control, increased resilience	Increased asset degradation/maintenance	Operational control philosophy constrained
Reduction of road fuel use	HVO fuelling for HGVs at Howdon and bran Sands	Steve Crake (Head of Commercial Assets/Fleet) and Anthony Browne (Energy & Decarbonisation)	1/09/2022	Improved vehicle efficiency, lower mileage	Supply chain risks associated with biofuels	Sustainable procurement approach
Reduction of road fuel use	Upgrade of LCV fleet to alternative fuels (EV)	Steve Crake (Head of Commercial Assets/Fleet) and Anthony Browne (Energy & Decarbonisation)	Rolling process	Improved vehicle efficiency, lower mileage, lower cost	Resilience risk, and greater scope 3 emissions relating to EVs	Resilience considered on vehicle-by-vehicle basis. Selection made on whole life emissions where information available.

Table 8 highlights emission sources that have been identified for improving source the data quality in future inventories.

Table 8. Projects to improve data quality

Emissions source	Actions to improve data quality	Responsibility	Completion date
Scope 3 emissions	Produce data collection template and request supporting data	Anthony Browne	1/04/2023
Scope 1 and Scope 2 Emissions	Automation of data collection/analysis to improve performance.	Anthony Browne	1/04/2023

2.5. STAFF ENGAGEMENT

Company emissions reduction commitments are published extensively internally and externally through multiple channels. Regular updates are included on the internal news site as well as Twitter, Yammer and LinkedIn.

Practically, NWL operates a service value framework incorporating operational and capital carbon impacts into routine decision making.

With respect to travel, NWL has 100% coverage of vehicle telematics. This data is used to identify and praise good driving performance which has safety and emissions benefits – there is a rolling programme of "Driver of the Month". Additionally, the company's travel booking system gives clear emissions metrics for every trip booked and allows users to make environmentally responsible choices.

2.6. KEY PERFORMANCE INDICATORS

Operational GHG emissions per Ml of treated water ($kgCO_2e/Ml$)

Operational GHG emissions per Ml of sewage flow to full treatment ($kgCO_2e/Ml$)

Operational GHG emissions per Ml of sewage water distribution input ($kgCO_2e/Ml$)

2.7. MONITORING AND REPORTING

GHG reporting will form part of the NWL quarterly Balance Scorecard which indicates performance across all KPIs for Water and Sewage Undertakers. Dr Anthony Browne, Energy and Decarbonisation Manager MLX will produce the data with support from the business intelligence team.

The Balance Scorecard is the key metric which the senior managers use for performance monitoring. The Balance Scorecard results are reported company-wide by the CEO.

APPENDIX 1: DETAILED GREENHOUSE GAS INVENTORY

Additional inventory details are disclosed in the tables below, and further GHG emissions data is available on the accompanying spreadsheet to this report (Appendix1-Data Summary Northumbrian Water Limited.xls).

Table 9. Direct GHG emissions, quantified separately for CO_2, CH_4, N_2O, NF_3, SF_6 and other appropriate GHG groups (HFCs, PFCs, etc.)

Category	CO_2	CH_4	N_2O	NF_3	SF_6	HFC	PFC	Desflurane	Sevoflurane	Isoflurane	Emissions total (tCO_2e)
Stationary combustion	41,866.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41,866.42
Mobile combustion (incl. company owned or leased vehicles)	7,999.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7,999.60
Emissions - Industrial processes	28,035.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28,035.17
Removals - Industrial processes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Leakage of refrigerants	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Treatment of waste	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Treatment of wastewater	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions - Land use, land-use change and forestry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Removals - Land use, land-use change and forestry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fertiliser use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Addition of livestock waste to soils	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Addition of crop residue to soils	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Enteric fermentation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Addition of lime to soils	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Open burning of organic matter	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total gross emissions	**77,901.19**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**77,901.19**

Table 10. Non-biogenic, biogenic anthropogenic and biogenic non-anthropogenic CO_2 emissions and removals by category

Category	Anthropogenic biogenic CO_2 emissions	Anthropogenic biogenic (CH_4 and N_2O) emissions (tCO_2e)	Non-anthropogenic biogenic (tCO_2e)
Category 1: Direct emissions	0.00	0.00	0.00
Category 2: Indirect emissions from imported energy	0.00	0.00	0.00
Category 3: Indirect emissions from transportation	0.00	0.00	0.00
Category 4: Indirect emissions from products used by organisation	0.00	0.00	0.00
Category 5: Indirect emissions associated with the use of products from the organisation	0.00	0.00	0.00
Category 6: Indirect emissions from other sources	0.00	0.00	0.00
Total gross emissions	**0.00**	**0.00**	**0.00**

A1.1 REPORTING BOUNDARIES

A1.1.1 Emission source identification method and significance criteria

The GHG emissions sources included in this inventory are those required for Programme certification and were identified with reference to the methodology described in the GHG Protocol and ISO 14064-1:2018 standards as well as the Programme Technical Requirements.

Significance of emissions sources within the organisational boundaries has been considered in the design of this inventory. The significance criteria used comprise:

- All direct emissions sources that contribute more than 1% of total Category 1 and 2 emissions
- All indirect emissions sources that are required by the Programme

(no answer provided)

A1.1.2 Included sources sinks and activity data management

As adapted from ISO 14064-1, the emissions sources deemed significant for inclusion in this inventory were classified into the following categories:

- **Direct GHG emissions (Category 1):** GHG emissions from sources that are owned or controlled by the company.
- **Indirect GHG emissions (Category 2):** GHG emissions from the generation of purchased electricity, heat and steam consumed by the company.
- **Indirect GHG emissions (Categories 3-6):** GHG emissions that occur as a consequence of the activities of the company but occur from sources not owned or controlled by the company.

Table 11 provides detail on the categories of emissions included in the GHG emissions inventory, an overview of how activity data were collected for each emissions source, and an explanation of any uncertainties or assumptions made based on the source of activity data. Detail on estimated numerical uncertainties is reported in Appendix 1.

Table 11. GHG emissions activity data collection methods and inherent uncertainties and assumptions

GHG emissions source or sink subcategory	Overview of activity data and evidence	Explanation of uncertainties or assumptions around your data and evidence	Use of default and average emissions factors	Pre-verified data
Stationary combustion	Direct emissions from burning fossil fuels	A2		
Emissions - Industrial processes	Process & Fugitive emissions	B2		
		Low		
Imported electricity	Purchased electricity	A2		
		Low		
Business travel - Transport (non-company owned vehicles)	Business travel on public transport and private vehicles, Transport: Company owned or leased vehicles	A2		
		Low		

GHG emissions source or sink subcategory	Overview of activity data and evidence	Explanation of uncertainties or assumptions around your data and evidence	Use of default and average emissions factors	Pre-verified data
Purchased goods and services	Outsourced activities (If not included in scope 1 & 2)	C2		
Transmission of energy (T&D losses)	Purchased electricity - Transmission and distribution	A2		
		Low		

A1.1.3 Excluded emissions sources and sinks

Emissions sources in Table 13 have been identified and excluded from this inventory.

Table 12. GHG emissions sources excluded from the inventory

Appendix 1
(No information supplied)

A1.2 QUANTIFIED INVENTORY OF EMISSIONS AND REMOVALS

A1.2.1 Calculation methodology

A calculation methodology has been used for quantifying the emissions inventory based on the following calculation approach, unless otherwise stated below:

Emissions = activity data x emissions factor

The quantification approach(es) has not changed since the previous measurement period

All emissions were calculated using Toitū emanage with emissions factors and Global Warming Potentials provided by the Programme (see Appendix 1 - data summary.xls). Global Warming Potentials (GWP) from the IPCC fifth assessment report (AR5) are the preferred GWP conversion[5].

There are systems and procedures in place that will ensure applied quantification methodologies will continue in future GHG emissions inventories.

A1.2.2 Historical recalculations

Historical recalculations have been conducted

Details

Updated to latest methodology but no significant change to baseline identified.

A1.2.3 Supplementary results

Holdings and transactions in GHG-related financial or contractual instruments such as permits, allowances, renewable energy certificates or equivalent, verified offsets or other purchased emissions reductions from eligible schemes recognised by the Programme are reported separately here.

A1.2.3.1 CONTRACTUAL INSTRUMENTS FOR GHG ATTRIBUTES

Contractual instruments are any type of contract between two parties for the sale and purchase of energy bundled with attributes about the energy generation, or for unbundled attribute claims. This includes Renewable Energy Certificates.

NWL purchases Renewable Energy Guarantee of origin certificates for every unit of grid delivered power it consumes. Additionally, NWL is the industry leader on green power purchasing - being the first company to enter into an offshore wind Power Purchase Agreement which directly links a renewable asset to NWL's electricity use.

Contractual instruments are applicable for this reporting period.

<INFORMATION NOT FOUND>

[5] If emission factors have been derived from recognised publications approved by the programme, which still use earlier GWPs, the emission factors have not been altered from as published.

A1.2.3.2 DOUBLE COUNTING AND DOUBLE OFFSETTING

There are various definitions of double counting or double offsetting. For this report, it refers to:

- Parts of the organisation have been prior offset.
- The same emissions sources have been reported (and offset) in both an organisational inventory and product footprint.
- Emissions have been included and potentially offset in the GHG emissions inventories of two different organisations, e.g. a company and one of its suppliers/contractors. This is particularly relevant to indirect (Categories 2 and 3) emissions sources.
- Programme approved 'pre-offset' products or services that contribute to the organisation inventory
- The organisation generates renewable electricity, uses or exports the electricity and claims the carbon benefits.
- Emissions reductions are counted as removals in an organisation's GHG emissions inventory and are counted or used as offsets/carbon credits by another organisation.

Double counting / double offsetting has not been included in this inventory.

Details

(No information supplied)

APPENDIX 2: SIGNIFICANCE CRITERIA USED

Table 13. Significance criteria used for identifying inclusion of indirect emissions

Emission source	Magnitude	Level of influence	Risk or opportunity	Sector specific guidance	Outsourced	Employee engagement	Intended Use and Users	Include in inventory?
Transmission & distribution losses	Medium	Medium	Low	Carbon reduce & CAW16 mandatory requirement	n/a	Low	Yes	Yes
Freight paid for by the organisation	Low	Medium	Low	Carbon reduce & CAW16 mandatory requirement	n/a	Low	Yes	Yes
Business travel	Low	Medium	Low	Carbon reduce & CAW16 mandatory requirement	n/a	Medium	Yes	Yes
Waste to landfill	Low	Medium	Low	Carbon reduce & CAW16 mandatory requirement	n/a	Low	Yes	Yes
Outsource activities (as defined by CAW boundary)	Low	Medium	Low	CAW16 mandatory requirement	Yes	Low	Yes	Yes

APPENDIX 3: CERTIFICATION MARK USE

NWL does not currently use certification marks on its customer facing documentation. Reference is made to ISO14064-1 accreditation in some communications and during regulator engagement.

APPENDIX 4: REFERENCES

International Organization for Standardization, 2018. ISO 14064-1:2018. Greenhouse gases – Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals. ISO: Geneva, Switzerland.

World Resources Institute and World Business Council for Sustainable Development, 2004 (revised). The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard. WBCSD: Geneva, Switzerland.

World Resources Institute and World Business Council for Sustainable Development, 2015 (revised). The Greenhouse Gas Protocol: Scope 2 Guidance. An amendment to the GHG Protocol Corporate Standard. WBCSD: Geneva, Switzerland.

APPENDIX 5: REPORTING INDEX

This report template aligns with ISO 14064-1:2018 and meet Toitū Carbon Reduce Programme Organisation Technical Requirements. The following table cross references the requirements against the relevant section(s) of this report.

Section of this report	ISO 14064-1:2018 clause	Organisational Technical Requirement rule
Cover page	9.3.1 b, c, r 9.3.2 d,	TR8.2, TR8.3
Availability	9.2 g	
Chapter 1: Emissions Inventory Report		
1.1. Introduction	9.3.2 a	
1.2. Emissions inventory results	9.3.1 f, h, j	TR4.14
1.3. Organisational context	9.3.1 a	
1.3.1. Organisation description	9.3.1 a	
1.3.2. Statement of intent		TR4.2
1.3.3. Person responsible	9.3.1 b	
1.3.4. Reporting period	9.3.1 l	TR5.1, TR5.8
1.3.5. Organisational boundary and consolidation approach	9.3.1.d	TR4.3, TR4.5, TR4.7, TR4.11
1.3.6. Excluded business units		
Chapter 2: Emissions Management and Reduction Report		
2.1. Emissions reduction results	9.3.1 f, h, j, k 9.3.2 j, k	TR4.14, TR6.18
2.2. Significant emissions sources		
2.3. Emissions reduction targets		TR6.1, TR6.2, TR6.4, TR6.6, TR6.8,
2.4. Emissions reduction projects	9.3.2 b	TR6.8, TR6.11, TR6.12, TR6.13, TR6.14, TR6.15
2.5. Staff engagement		TR6.1, TR6.9
2.6. Key performance indicators		TR6.19
2.7. Monitoring and reporting	9.3.2 h	TR6.2
Appendix 1: Detailed greenhouse gas inventory	9.3.1 f, g	TR4.9, TR4.15
A1.1 Reporting boundaries		
A1.1.1 Emission source identification method and significance criteria	9.3.1 e	TR4.12, TR4.13
A1.1.2 Included emissions sources and activity data collection	9.3.1 p, q 9.3.2 i	TR5.4, TR5.6, TR5.17, TR5.18,
A1.1.3 Excluded emissions sources and sinks	9.3.1 i	TR5.21, TR5.22, TR5.23
A1.2 Quantified inventory of emissions and removals		
A1.2.1 Calculation methodology	9.3.1 m, n, o, t	
A1.2.2 Historical recalculations		
A1.2.3 Liabilities		
A1.2.3.1 GHG stocks held		TR4.18
A1.2.3.2 Land-use liabilities	9.3.3.	TR4.19
A1.2.4 Supplementary results		
A1.2.4.1 Contractual instruments for GHG attributes	9.3.3	TR4.16, TR4.17
A1.2.4.2 Carbon credits and offsets	9.3.3.3	

A1.2.4.3 Purchased or developed reduction or removal enhancement projects	9.3.2 c	
A1.2.4.4 Double counting and double offsetting		
Appendix 2: Significance criteria used	9.3.1.e	TR4.12
Appendix 3: Certification mark use		TR3.6
Appendix 4: References		
Appendix 5: Reporting index		

Achilles

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SUMMARY OF

CARBON REDUCE CERTIFICATION

i

FOR Northumbrian Water Limited

NORTHUMBRIAN WATER living water | ESSEX&SUFFOLK WATER living water

Summary for 01 April 2021 to 31 March 2022

CARBON REDUCE ORGANISATION CERTIFIED: NORTHUMBRIAN WATER LIMITED

Carbon Reduce certified means committing to ongoing reductions while achieving annual measurement for at least the Toitū mandatory[ii] emissions.

Measured emissions to **ISO 14064-1:2018** and Programme requirements

Managing and reducing against Programme requirements

This report provides a summary of the annual greenhouse gas (GHG) emissions inventory and management report for Northumbrian Water Limited as part of the annual work to achieve Carbon Reduce certification. Full details of the annual achievements, commitments, and verification are available on request from Northumbrian Water Limited.

The purpose of this report is to measure and report our GHG emissions in accordance with Ofwat's requirements for the UK Water Sector. This report is an important element of Northumbrian Water's Net Zero 2027 commitment.

ACHIEVEMENTS

These achievements have been verified in line with ISO 14064-3:2018 and Carbon Reduce Programme Technical Requirements for the 01 April 2021 to 31 March 2022 measurement period.

EMISSIONS MEASUREMENT

Northumbrian Water Limited's greenhouse gas emissions for this year (01 April 2021 to 31 March 2022) were 157,501.47 tCO_2e. Northumbrian Water Limited has measured the emissions resulting from its operational activities, purchased energy, and the key impacts from its value chain activities, including business travel, freight, and waste sent to landfill. The annual inventory is detailed in the following table.

		GHG emissions (tCO_2e)		
Category (ISO 14064-1:2018)	**Scopes (GHG Protocol)**	**Base Year 2019/2020**	**Location based 2021/2022**	**Market based 2021/2022**
Category 1: Direct emissions	Scope 1	65,960.14	77,901.19	44,651.49
Category 2: Indirect emissions from imported energy	Scope 2	86,882.07	71,110.65	0.00
Category 3: Indirect emissions from transportation	Scope 3	913.18	300.03	300.03
Category 4: Indirect emissions from products used by organisation	Scope 3	9,550.61	8,189.60	1,896.71
Category 5: Indirect emissions associated with the use of products from the organisation	Scope 3	0.00	0.00	0.00

		GHG emissions (tCO_2e)		
Category 6: Indirect emissions from other sources	Scope 3	0.00	0.00	0.00
Total gross emissions		**163,306.00**	**157,501.47**	**46,848.23**
Reductions		-15,603.33	-24,848.80	24,930.82
Total net emissions		**147,702.67**	**132,652.67**	**21,917.41**

The operational GHG emission sources included in this inventory are shown in Figure 1 below.

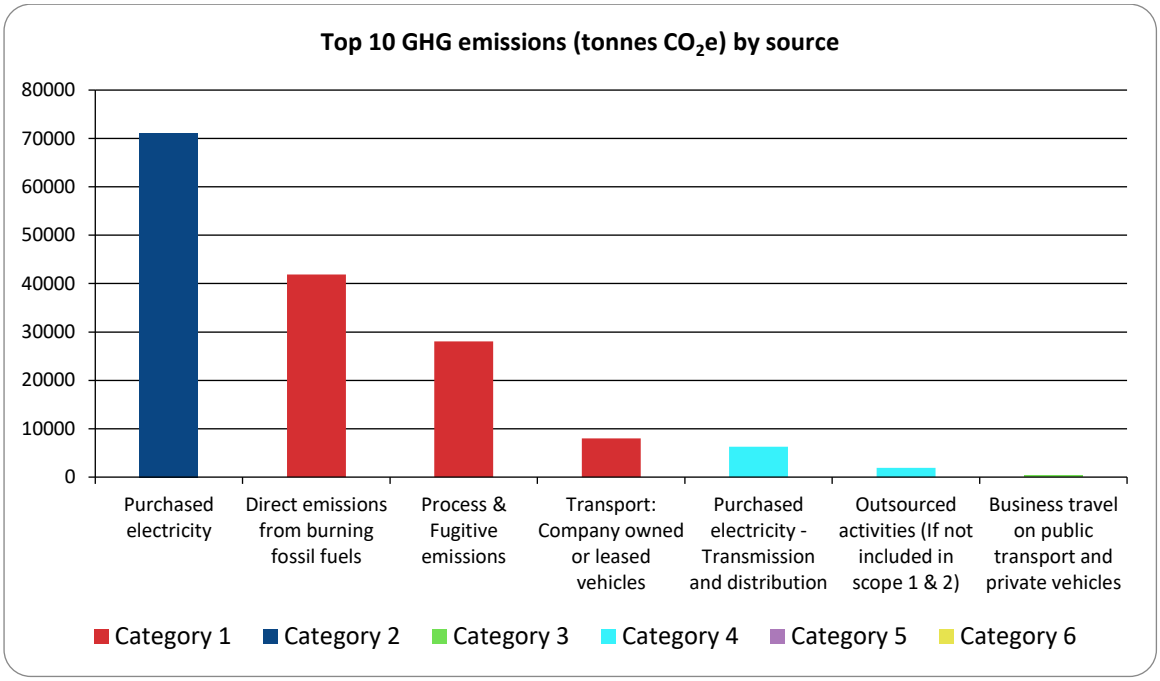

Figure 1: Top 10 GHG emissions (tonnes CO_2e) by source

SCOPE OF MEASURED INVENTORY

CONSOLIDATION APPROACH

An operational control consolidation approach was used to account for emissions. Organisational boundaries were set with reference to the methodology described in the GHG Protocol and ISO 14064-1:2018 standards. [iii]

An operational control consolidation approach was used to account for the emissions of Northumbrian Water Limited.

In addition to the operational control consolidation approach. The emissions boundary is limited to the appointed business only. The appointed business refers to those assets and activities regulated under the Water Industry Act 1991. This is an important distinction due to the use of the reported emissions being included in Northumbrian Water Limited's regulatory submission to Ofwat.

BOUNDARIES

Organisational structure showing Northumbrian Water Limited and its subsidiaries.

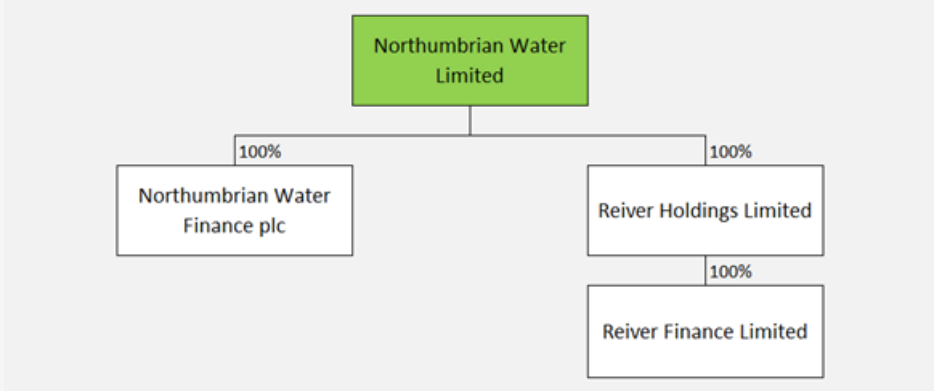

Figure 2: Organisational structure showing business units included and excluded

• Northumbrian Water Finance plc - Non-appointed, and administrative so no emissions included in scope. Excluded emissions do not exceed 5% of the total footprint within the organisation boundary stated.

• Reiver Finance Limited - Non-appointed, and administrative so no emissions included in scope;

• Reiver Holdings Limited - Non-appointed, and administrative so no emissions included in scope.

Managing and reducing

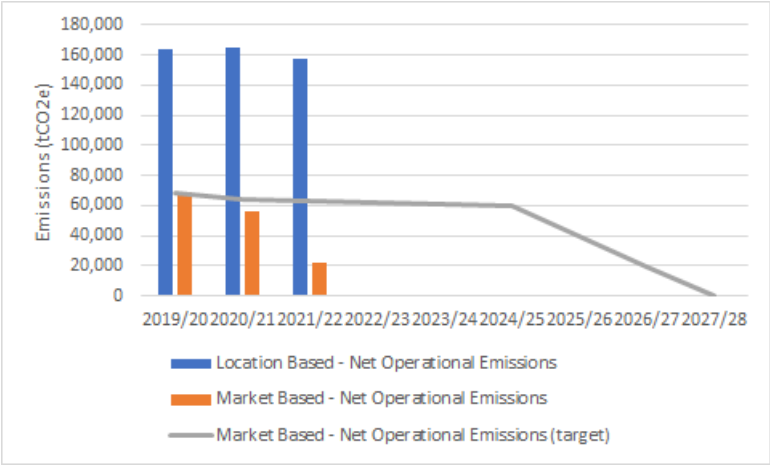

Figure 3: Performance against target since the base year

Northumbrian Water's target net reduction for the reporting period against a 2019/20 baseline is 5,602tCO_2e on a market-based approach. NWL has achieved a reduction of 46,710 - significantly outperforming this target.

Current targets are on Market Based Net Operational Emissions calculated using the industry standard methodology. Northumbrian Water's target net reduction for the reporting period against a 2019/20 baseline is 5,602tCO_2e on a market-based approach. NWL has achieved a reduction of 46,710 - significantly outperforming this target.

Target name	Baseline period	Target date	Type of target (intensity or absolute)	Current performance (tCO_2e)	Current performance (%)	Comments
AMP7 Annual Target Y1	2019/20	2020/21	Absolute	55,904	287%	Ahead of in AMP Targets

Target name	Baseline period	Target date	Type of target (intensity or absolute)	Current performance (tCO_2e)	Current performance (%)	Comments
AMP7 Annual Target Y2	2019/20	2021/22	Absolute	21,917	834%	Ahead of in AMP Targets
AMP7 Annual Target Y3	2019/20	2022/23	Absolute	21,917	690%	Ahead of in AMP Targets
AMP7 Annual Target Y4	2019/20	2023/24	Absolute	21,917	588%	Ahead of in AMP Targets
AMP7 Annual Target Y5	2019/20	2024/25	Absolute	21,917	513%	Ahead of in AMP Targets
Net Zero Target Date	NA	2027/28	Absolute	21,917	32%	Significant reductions required to achieve Net Zero.

COMMITMENTS

Reduction targets

Northumbrian Water Limited is committed to managing and reducing its emissions. Northumbrian Water Limited's commitments, including GHG emissions reduction targets and plans, have been validated in line with Toitū Carbon Reduce programme requirements.

NWL has made a commitment within its regulated business plan to reduce emissions against a 2019/20 baseline as given in the Targets table, an estimate is made of intensity values that would result from achieving these target levels.

The company has committed to achieving net zero emissions on a market-based approach by the end of the 2027/28 reporting year and NWL is one of three companies sponsoring the WaterUK sector wide commitment to deliver a net-zero water and sewage sector in England by 2030.

Looking ahead, Northumbrian Water Limited is currently focused on the following projects.

Objective	Project	Responsibility	Completion date	Potential co-benefits	Potential unintended consequences	Actions to minimise unintended consequence
Increased renewable electricity generation	Lumley Solar	Andy Downer (Project Manager) and Anthony Browne (Energy & Decarbonisation)	1/01/2022	Biodiversity gain, increased power resilience, reduced operational costs	Use of agricultural land, visual impact	Considered site selection, visual impact mitigation, site restoration

Objective	Project	Responsibility	Completion date	Potential co-benefits	Potential unintended consequences	Actions to minimise unintended consequence
Increased renewable electricity generation	Sedgeletch Solar	Andy Downer (Project Manager) and Anthony Browne (Energy & Decarbonisation)	1/07/2022	Biodiversity gain, increased power resilience, reduced operational costs	Visual impact	Considered site selection, visual impact mitigation, site restoration
Increased renewable electricity generation	Aycliffe Solar	Andy Downer (Project Manager) and Anthony Browne (Energy & Decarbonisation)	1/08/2022	Biodiversity gain, increased power resilience, reduced operational costs	Visual impact	Considered site selection, visual impact mitigation, site restoration
Increased renewable electricity generation	Billingham Solar	Andy Downer (Project Manager) and Anthony Browne (Energy & Decarbonisation)	1/09/2022	Biodiversity gain, increased power resilience, reduced operational costs	Visual impact	Considered site selection, visual impact mitigation, site restoration
Increased renewable electricity generation	Blyth Solar	Andy Downer (Project Manager) and Anthony Browne (Energy & Decarbonisation)	1/10/2022	Biodiversity gain, increased power resilience, reduced operational costs	Visual impact	Considered site selection, visual impact mitigation, site restoration
Increased renewable electricity generation	Broken Scar Solar	Andy Downer (Project Manager) and Anthony Browne (Energy & Decarbonisation)	1/11/2022	Biodiversity gain, increased power resilience, reduced operational costs	Use of agricultural land, visual impact	Considered site selection, visual impact mitigation, site restoration
Increased renewable electricity generation	Hanningfield Solar	Anthony Browne (Energy & Decarbonisation)	1/04/2023	Biodiversity gain, increased power resilience, reduced operational costs	Use of agricultural land, visual impact	Considered site selection, visual impact mitigation, site restoration

Objective	Project	Responsibility	Completion date	Potential co-benefits	Potential unintended consequences	Actions to minimise unintended consequence
Increased renewable electricity generation	Layer Solar	Anthony Browne (Energy & Decarbonisation)	1/04/2023	Biodiversity gain, increased power resilience, reduced operational costs	Use of agricultural land, visual impact	Considered site selection, visual impact mitigation, site restoration
Increased renewable electricity generation	Seaton Carew Wind	Anthony Browne (Energy & Decarbonisation)	2/04/2023	Biodiversity gain, increased power resilience, reduced operational costs	Use of agricultural land, visual impact	Considered site selection, visual impact mitigation, site restoration
Reduced/Optimised Natural Gas Consumption	Strategic control of Advanced Anaerobic Digestion	Harry Laing (Newcastle University KTP) and Anthony Browne (Energy & Decarbonisation)	1/06/2023	Reduced costs, better operational control, increased resilience	Increased asset degradation/maintenance	Operational control philosophy constrained
Reduction of road fuel use	HVO fuelling for HGVs at Howdon and bran Sands	Steve Crake (Head of Commercial Assets/Fleet) and Anthony Browne (Energy & Decarbonisation)	1/09/2022	Improved vehicle efficiency, lower mileage	Supply chain risks associated with biofuels	Sustainable procurement approach
Reduction of road fuel use	Upgrade of LCV fleet to alternative fuels (EV)	Steve Crake (Head of Commercial Assets/Fleet) and Anthony Browne (Energy & Decarbonisation)	Rolling process	Improved vehicle efficiency, lower mileage, lower cost	Resilience risk, and greater scope 3 emissions relating to EVs	Resilience considered on vehicle-by-vehicle basis. Selection made on whole life emissions where information available.

CERTIFICATE DETAILS

Certification status:	Carbon Reduce certified organisation
Certificate number:	2022120J, Year 3 of 3 year certificate period
Valid until:	09 June 2023
Measurement period:	01 April 2021 to 31 March 2022
Base year:	01 April 2019 to 31 March 2020
Audited by:	Achilles Assessment Services (UK)
Level of assurance:	Reasonable

[i]
Disclaimer: This Certification Summary Statement is a summary of the information (validated and verified for relevant components of the certification) considered for certification and the certification decision. It should not be taken to represent the full submission for certification. Whilst every effort has been made to ensure that the information in this Statement is accurate and complete, Enviro-Mark Solutions Limited (trading as Toitū Envirocare) does not, to the maximum extent permitted by law, give any warranty or guarantee relating to the accuracy or reliability of the information.

[ii] The mandatory sources that must be included in any Carbon Reduce Programme inventory include:
- All direct emissions from the activities of the organisation, or the part of the organisation being certified. Direct emissions come from assets owned or controlled by the organisation, such as emissions from fleet vehicles, boilers, generators and HVAC systems.
- All emissions from imported energy (electricity, heat and steam)
- Emissions from business travel and freight paid for by the organisation
- Emissions associated with waste disposed of by the organisation, as well as the transmission and distribution of electricity, and natural gas

[iii] Control: the organisation accounts for all GHG emissions and/or removals from facilities over which it has financial or operational control. Equity share: the organisation accounts for its portion of GHG emissions and/or removals from respective facilities.

Carbon Reduce Certification

This is to certify that

Northumbrian Water Limited

Meets the requirements of Carbon Reduce certification having measured its greenhouse gas emissions in accordance with ISO 14064 Part 1 2018 and is committed to managing and reducing its emissions in respect of its operational activities of its UK organisation.

Level of Assurance: Reasonable

Certificate Number: 2022120J

Start Date: 09 June 2022
Expiry Date: 09 June 2023

Osana Robertson

TOITŪ CARBON REDUCE ISO 14064-1 ORGANISATION

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Company Address: Northumbria House, Abbey Road, Pity Me, Durham, DH1 5FJ

This certificate should be read in association with the annual disclosure statement which is available at www.toitu.co.nz

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