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water



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Annual Information Return 2023 for Public Domain





Annual Information Return 2023

for

Public Domain

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Annual Information Return 2023

Section 1

Board's Overview

Board's Statement

Northern Ireland Water's board of directors is required by the Utility Regulator to prepare a statement on the compilation of the Annual Information Return (AIR), explaining that it has satisfied itself as to the reliability, accuracy and completeness of the information provided.

The directors consider that the AIR provides a true and fair view of the state of affairs of NI Water for the financial year 2022/23. With respect to the preparation of the AIR, subject to any departure and explanation described in the commentary, the directors confirm:

- suitable accounting policies have been selected and applied consistently;
- judgements and estimates that have been made are reasonable and prudent;
- applicable accounting standards have been followed, subject to any material departures disclosed and explained in the financial statements.

The directors are responsible for keeping adequate accounting records that are sufficient to show and explain the company's transactions and disclose with reasonable accuracy at any time the financial position of the company and enable them to ensure that its financial statements comply with the Companies Act 2006, and the relevant provisions of the Water and Sewerage Services (Northern Ireland) Order 2006.

The directors who held office at the date of approval of this Board's Statement confirm that, so far as they are each aware, there is no relevant audit information of which the company's auditors are unaware and each director has taken all reasonable steps they should have taken as a director to make themselves aware of any relevant audit information and to establish that the company's auditors are aware of that information.

The Board's Statement sets out how NI Water's Board has satisfied itself that the information provided in the AIR is as reliable, accurate and complete as is reasonably practicable.

Processes and Internal Systems of Control

The AIR has been compiled in accordance with NI Water's AIR Completion Manual, which ensures clear ownership of AIR data, evidence of peer review and procedural documentation covering the compilation processes were followed in completing the AIR submission.

The AIR Completion Manual details roles, responsibilities and governance procedures, and provides guidance and templates for the completion of AIR methodologies, data tables and company commentaries.

Project Governance

The AIR project was coordinated by NI Water's Regulation Manager and representatives (senior managers) from relevant functional areas, i.e. those functions which contribute data to the AIR submission.

The Regulation Manager ensured:

1. information was disseminated to and from AIR contributors;
2. adherence to the AIR submission programme;
3. implementation of Reporter's recommendations.

Senior managers from across NI Water were responsible for:

- ensuring that the Utility Regulator's AIR reporting requirements were understood and followed;
- ensuring that relevant AIR line methodologies were updated in accordance with the reporting requirements;
- coordinating the population of data tables and the drafting of associated company commentaries in accordance with line methodologies and reporting requirements in compliance with the AIR programme;
- ensuring that relevant line methodologies, data tables and company commentaries were reviewed and approved in accordance with the AIR Completion Manual's roles and responsibilities matrix.

In order to maintain accuracy, consistency and a clear audit trail, roles and responsibilities for each element of the AIR submission were defined for the three key components of AIR, namely:

- line methodologies,
- data tables, and
- company commentaries.

Population of data tables and drafting of associated company commentaries were in accordance with the Utility Regulator's AIR reporting requirements. In addition, company-specific methodologies (line methodologies), explaining how raw data is collected, processed and input to the data tables, were updated and adhered to when populating data tables and drafting company commentaries.

To ensure consistency of reporting for AIR, every item of data provided in the AIR tables had a designated author, reviewer and approver. In all cases, the approver was an appropriate senior manager.

Independent Review

Audit plans were developed by the Reporter and external Auditor. The Reporter's audit plan was developed in accordance with the Utility Regulator's AIR reporting requirements and was approved by NI Water and the Utility Regulator.

Audits were undertaken by the company's Auditor and the Reporter in May and June. Feedback from the Reporter and Auditor was used to amend tables and commentaries where appropriate.

The complete AIR was endorsed by NI Water's Executive Committee and Board on 14th and 29th June 2023 respectively.

Board Involvement

In summary, the involvement of NI Water's Board in the completion of the AIR included:

- Reviewing monthly company business performance updates;
- Considering the findings of the Reporter and Auditor as presented in June 2023;
- The Board gave the Reporter the company's undertaking to address his recommendations, with oversight by Executive Directors;
- Reviewing, commenting on and approving the Board's Overview;
- Reference to NI Water's Executive Committee and senior management team to verify corporate information;
- Executive Directors received regular reports on progress and reviewed, challenged, commented and influenced the content of the AIR.

The following measures help to ensure that the AIR complies with the Utility Regulator's reporting requirements and provides some assurance with respect to material assumptions and judgements included in the AIR commentaries:

- Clear accountability at senior management level for the ownership of all elements of AIR. NI Water has established an accountability trail from the information providers to the line owners through to heads of function.
- Every item of data in AIR has a designated author, reviewer and approver.
- Every provider of data produces a written methodology documenting the method used for the derivation of the data reported.
- Every item of financial data is prepared and reviewed by separate individuals and reconciled to the chart of accounts.
- Before each item of data is included in the AIR it is reviewed and approved by senior management in the data provider's business area.
- NI Water facilitates access to allow the Reporter and Auditor to review all relevant information required to discharge their duties.
- The Board receives regular presentations during the course of the year on key performance indicators, regulatory performance and key issues reported in the AIR.
- The Auditor presents to NI Water's audit committee and the Reporter presents to the Board at the conclusion of the AIR audit process.
- Directors may challenge the production and content of the AIR to satisfy themselves that their duties are fulfilled.
- In any case of uncertainty regarding data, commentary or line methodology, NI Water seeks advice and clarification from the Utility Regulator, the Reporter or the Auditor as appropriate.

Directors' Endorsement

NI Water's board believes that it has developed and applied processes, governance and systems of internal control sufficient to meet its obligations for the provision of information contained in the Annual Information Return.

Each director is satisfied that:

- a) so far as he/she is aware, there is no relevant audit information of which NI Water's auditors or reporters are unaware;
- b) He/she has taken all reasonable steps as a director to make himself/herself aware of any relevant audit information and to establish that NI Water's auditors and reporters are aware of the information.

For and on behalf of NI Water:



Dr Leonard J. O. O'Hagan CBE
Chairman, Northern Ireland Water



Peter McNaney CBE
Chairman of the Audit Committee

NORTHERN IRELAND WATER LIMITED - ANNUAL INFORMATION RETURN

ANNUAL RETURN - BOARD'S OVERVIEW

TABLE A - WATER SERVICE - KEY OUTPUTS AND SERVICE DELIVERY (TOTAL)

DESCRIPTION	UNITS	DP	1	2	3	4	5	6	7	8	9	10	11	12
			REPORTING YEAR 2015-16	REPORTING YEAR 2016-17	REPORTING YEAR 2017-18	REPORTING YEAR 2018-19	REPORTING YEAR 2019-20	REPORTING YEAR 2020-21	REPORTING YEAR 2021-22	REPORTING YEAR 2022-23	REPORTING YEAR 2023-24	REPORTING YEAR 2024-25	REPORTING YEAR 2025-26	REPORTING YEAR 2026-27
A Consumer Service														
1 DG2 Properties at risk of low pressure removed from the risk register by company action	nr	0	171	40	175	176	115	168	176	143				
2 DG2 Properties receiving pressure below the reference level at end of year	nr	0	900	862	711	719	626	578	1715	1780				
3 DG3 Supply interruptions > 12hrs (unplanned and unwarned)	%	2	0.10	0.06	0.10	0.04	0.09	0.00	0.08	0.00				
4 DG3 Supply interruptions (overall performance score)	nr	2	1.14	0.66	0.81	0.44	0.79	0.21	1.59	0.15				
5 DC8 % metered customers received bill based on a meter reading	%	2	99.23	99.52	99.67	99.67	99.53	99.22	99.66	99.77				
6 Unwanted Contacts	nr	0		110,197	105,964	75,569	67,013	70,204	66,064	57,327				
7 First Point of Contact Resolved (FPOCR)	%	1		66.5	65.8	90.0	80.4	80.4	84.0	84.0				
8 Net Promoter Score (all contacts)	nr	0		27	31	32	42	42	32	36				
9 Total Leakage	Ml/d	0	162	163	162	160	161	158	156	162				
10 Security of supply index	nr	0	100	100	100	100	100	99	100	99				
11 Percentage of NI Water's power usage derived from renewable sources	%	1	39.8	35.5	36.9	39.4	44.3	43.1	52.8	62.8				
B Quality Water														
12 % overall compliance with drinking water regulations	%	2	99.83	99.86	99.88	99.90	99.90	99.94	99.88	99.91				
13 % compliance at consumers tap	%	2	99.74	99.77	99.81	99.83	99.84	99.91	99.82	99.88				
14 % iron compliance at consumers tap	%	2	98.40	98.66	98.85	98.94	98.89	99.56	99.35	99.15				
15 % Service Reservoirs with coliforms in >5% samples	%	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
C Water Outputs														
16 Water mains activity - Length of new, renewed or relined mains	km	0	117	172	126	167	149	104	102	123				
17 Completion of nominated trunk main schemes	nr	0	2	1	0	0	0	1	1	3				
18 Completion of nominated water treatment works schemes	nr	0	1	0	0	0	1	1	1	3				
19 Completion of nominated improvements to increase the capacity of service reservoirs and clear water tanks	nr	0	0	0	1	0	1	1	1	0				
D Serviceability														
20 Water infrastructure serviceability	Text		Stable	Stable	Stable	Stable	Stable	Stable	Stable	Stable				
21 Water non-infrastructure serviceability	Text		Stable	Stable	Stable	Stable	Stable	Stable	Stable	Stable				
E PC15 Additional Water Service Output Measures														
22 Number of lead communication pipes replaced under the proactive lead replacement programme	nr	0	1922	1867	1767	2070	1781	1675	1864	1873				
23 Number of school visits	nr	0	277	257	219	246	229	266	299	210				
24 Number of other education events	nr	0	65	64	62	66	143	12	64	63				
F PC21 Additional Water Service Output Measures														
25 Number of catchments where management plan recommendations have been delivered	nr	0							0	3				
26 Number of treatability studies completed	nr	0							0	1				

NORTHERN IRELAND WATER LIMITED - ANNUAL INFORMATION RETURN

ANNUAL RETURN - BOARD'S OVERVIEW

TABLE B - SEWERAGE SERVICE - KEY OUTPUTS AND SERVICE DELIVERY - WATER SERVICE (TOTAL)

DESCRIPTION	UNITS	DP	1	2	3	4	5	6	7	8	9	10	11	12
			REPORTING YEAR 2015-16	REPORTING YEAR 2016-17	REPORTING YEAR 2017-18	REPORTING YEAR 2018-19	REPORTING YEAR 2019-20	REPORTING YEAR 2020-21	REPORTING YEAR 2021-22	REPORTING YEAR 2022-23	REPORTING YEAR 2023-24	REPORTING YEAR 2024-25	REPORTING YEAR 2025-26	REPORTING YEAR 2026-27
A. Consumer Service Sewerage														
1 DG5 Properties at risk of flooding - number removed from 2 in 10, 1 in 10 and 1 in 20 risk register by company action	nr	0	7	7	17	9	4	11	3	3				
2 DG5 Properties on the 2 in 10, 1 in 10 and 1 in 20 risk register at the end of the year	nr	0	160	156	134	124	119	108	107	102				
B. Quality Sewerage														
3 % of WwTWs discharges compliant with numeric consents	%	1	92.8	93.6	93.5	94.8	94.9	95.3	93.8	93.8				
4 % of total p.p. served by WwTWs compliant with numeric consents excluding upper tier failures	%	1	98.6	98.9	98.7	99.4	99.5	99.5	99.2	99.2				
5 Small WwTW compliance (wvks greater than or equal to 20p.p.e. but less than 250p.p.e.)	%	2	80.72	83.88	87.21	86.64	89.29	90.91	92.01	92.65				
6 Number of high and medium pollution incidents attributable to NI Water	nr	0	21	22	20	16	13	9	12	9				
C. Sewerage Outputs														
7 Sewerage activity - Length of sewers replaced or renovated	km	0	17	9	15	11	19	13	30	22				
8 Delivery of improvements to nominated LIDs as part of a defined programme of work	nr	0	28	11	11	8	3	1	4	3				
9 Delivery of improvements to nominated WwTWs as part of a defined programme of work	nr	0	3	2	1	6	2	3	1	6				
10 Small wastewater treatment works delivered as part of the rural wastewater investment programme	nr	0	4	8	3	8	5	12	2	10				
D. Serviceability														
11 Sewerage infrastructure serviceability	Text		Stable	Stable	Stable	Stable	Stable	Stable	Stable	Stable				
12 Sewerage non-infrastructure serviceability	Text		Stable	Stable	Stable	Stable	Stable	Stable	Stable	Stable				
E. PC15 Additional Sewerage Service Output Measures														
13 CSO and EO discharges at which event and duration monitoring equipment has been installed	nr	0	0	0	0	115	37	127	52	83				
14 WwTWs upgraded to comply with PPC Regulations	nr	0	0	0	1	6	7	2	0	0				
15 Impermeable surface water collection area removed from the combined sewerage network	m ²	0	28,560	54,864	119,200	34,103	59,586	0	1,200	91,898				
16 Number of sustainable WwTW solutions delivered (p.e. ≥ 250)	nr	0	1	1	1	1	0	0	0	0				
17 Number of sustainable WwTW solutions delivered (p.e. < 250)	nr	0	0	1	0	1297	1	1	0	0				
F. PC21 Additional Sewerage Output Measures														
18 Number of current Economic Constraint Areas removed by PC21 investment	nr	0							0	0				
19 Number of current Serious Development Restrictions removed by PC21 investment	nr	0							0	6				

NORTHERN IRELAND WATER LIMITED - ANNUAL INFORMATION RETURN

ANNUAL RETURN - BOARD'S OVERVIEW

TABLE C - EXPENDITURE & FINANCIAL PERFORMANCE MEASURES (TOTAL)

DESCRIPTION	UNITS	DP	1	2	3	4	5	6	7	8	9	10	11	12
			REPORTING YEAR 2015-16	REPORTING YEAR 2016-17	REPORTING YEAR 2017-18	REPORTING YEAR 2018-19	REPORTING YEAR 2019-20	REPORTING YEAR 2020-21	REPORTING YEAR 2021-22	REPORTING YEAR 2022-23	REPORTING YEAR 2023-24	REPORTING YEAR 2024-25	REPORTING YEAR 2025-26	REPORTING YEAR 2026-27
A TOTAL EXPENDITURE														
1 Total operating expenditure - water service (NI Water only)	£m	3	76,947	80,362	84,765	90,334	80,971	88,141	96,680	105,015				
1a Total operating expenditure (PPP) - water service	£m	3	8,225	9,062	9,323	9,721	9,549	10,076	11,161	13,109				
2 Total capital expenditure (excl. adopted and nil cost assets)	£m	3	63,796	67,719	62,807	70,162	75,556	78,493	98,960	136,174				
3 Total operating expenditure - sewerage service (NI Water only)	£m	3	73,126	71,950	74,758	76,367	74,216	79,273	95,894	108,631				
3a Total operating expenditure (PPP) - sewerage service	£m	3	25,096	25,377	25,693	10,908	12,722	14,052	9,551	12,792				
4 Total capital expenditure (excluding adopted and nil cost assets) - sewerage service	£m	3	79,690	88,551	89,721	100,824	96,699	98,706	129,499	129,653				
B CURRENT COST ACCOUNTS - PROFIT & LOSS														
5 Total Turnover	£m	3	367,287	372,854	381,099	409,662	422,314	412,533	434,164	473,700				
6 Current cost operating costs (including CCD & IRC) - not used	£m	3												
7 Current cost operating profit - not used	£m	3												
C CAPITAL BASE & POST TAX RETURN														
8 Capital Value Year - End (outturn)	£m	3	2,133.30	2,244.90	2,396.10	2,537.90	2,672.40	2,611.20	2,831.60	3,307.40				
9 Total net debt	£m	3	980,545	1,010,647	1,079,329	1,330,886	1,370,422	1,420,825	1,536,789	1,691,532				
10a Post tax return on capital	%	2	2.57	2.60		5.72	5.48	4.37	3.68	3.30				
10b Pre tax return on capital	%	2	2.57	2.60		5.72	5.48	4.35	3.68	3.30				
D KEY FINANCIAL INDICATORS														
11 Cash interest cover (funds from operations: gross interest)	ratio	2	3.38	3.45	3.50	3.20	3.31	2.99	3.24	3.29				
12 Adjusted cash interest cover (funds from operation less capital charges: gross interest)	ratio	2	0.83	0.91	1.98	1.61	1.70	1.15	1.37	0.89				
13 Adjusted cash interest cover (funds from operation less capital maintenance: gross interest)	ratio	2	1.76	1.58	1.74	1.78	1.97	1.45	1.27	1.08				
14 Funds from operations: debt	ratio	2	0.12	0.12	0.12	0.10	0.10	0.08	0.08	0.08				
15 Retained cash flow: debt	ratio	2	0.09	0.10	0.07	0.08	0.09	0.07	0.05	0.07				
16 Gearing: D/RVCV	%	2	46.24	47.46	45.86	1257.00	52.64	56.36	54.98	50.06				
17 Gearing: D/RVCV (adjusted for PPP liability)	%	2	48.47	49.45	47.79	56.95	55.84	59.25	57.62	52.44				

Chapter 1

PC21 Outputs

Tables A and B

1.1 Improvements to Drinking Water and Environmental Quality

Water Quality

We achieved our drinking water quality compliance targets in 2022.

Water Resource and Supply Resilience

The Water Resource and Supply Resilience Plan (WR & SR Plan) sets out how NI Water intends to sustainably maintain the balance between supply and demand for water over the long term, and the operational and management options and activities available to respond to short term critical events such as droughts and freeze-thaw issues. This has identified a number of Water Resource Zones that are likely to be in deficit in the future and the next stage in plan development is the options assessment to identify the required mitigations to resolve these potential supply/demand issues.

A number of new projects and operational interventions have recently been completed which have improved current supply/demand and resilience issues. These were driven by both the outputs of the last WR & SR Plan and also from the outputs of the recent review into High Demand incidents. This includes, among other activities, a new 0.6MI/d borehole at Moneymore, the construction of two new filters at Clay Lake water treatment works to improve performance and intake improvements at Lough Fea, which has increased throughput by circa 2MI/d.

Further work is continuing including the progression of the strategically critical Castor Bay to Ballydougan project, which will facilitate transfer of additional flow from Castor Bay to Ballydougan.

In 2023/24 the Draft WR & SR Plan and associated Strategic Environmental Assessment will be published for public consultation. Following the consultation any required amendments will be actioned prior to the publication of the Final Plan in 2023/24. The recommended options from the plan will also be advanced to business case stage for advancement in PC21 or to support the PC27 business plan.

Freeze/Thaw

In December 2022, a major operation started when the freezing weather changed to a rapid thaw, resulting in thousands of burst pipes on the water supply network and customer properties. After nearly a week of intense and focused work to repair bursts, ramp up water production, tanker additional supplies to vulnerable service reservoirs, while making appeals through the media for help to identify leaks and conserve water, demand moved back to business-as-usual levels. As well as a maximum daily water production of 740 million litres of water, we moved almost 10 million litres of water via over 550 tanker runs – keeping our customers in supply.

Leakage

Throughout the year, NI Water's leakage teams work around the clock, locating and repairing approximately 235 leaks a week saving water, a precious resource for hygiene and hydration.

In 2022/23, we were making good progress with reducing leakage. However, in December 2022 the UK and Ireland experienced a major freeze/thaw weather event which had a very significant impact upon NI Water's and customers' pipework. As a result, this weather event caused a dramatic increase in leakage and, consequently, we were unable to achieve the 2022/23 target.

Our teams work 24/7 using highly skilled leakage detection and repair techniques. A variety of leakage detection methods are used to find leaks whether they are on water mains or within customer properties. Some of these techniques involve using a listening stick, a tried and tested way of detecting a leak as well as other methods such as ground microphones, acoustic loggers, drones and dogs.

One of the innovative technologies being used is satellite imagery. Potential leaks are detected with the assistance of specialist satellite mounted technology which identifies water spreading from underground pipes. Leakage detection teams are then able to undertake follow-up work to determine if there is a confirmed leak.

We are currently trialling acoustic leak detection loggers and hydrophones. These listening devices can be used to monitor the water network for leaks. The technology is more sensitive than the human ear and by monitoring pipes at night when background noise tends to be at a minimum. Noise loggers have a far greater chance of detecting leakage. The logger samples noise on the water network and then carries out a statistical analysis to ascertain whether a leak is likely to exist.

It can be extremely challenging to locate leaks when they do occur and hence we need to find new innovative ways of finding and addressing leakage. One such method is satellite-mounted SAR technology which identifies water leaking from underground pipes using algorithms that have been fine tuned to recognise the signatures of water leaking from different systems. Points of interest (POI) are identified which are provided to NI Water in GIS (Geographical Information Systems) data files, these files are overlaid with the water network pipe layer from the system owner to create a highlighted area (POI) for leakage detection investigations by NI Water Leakage Technicians.

Supply Interruptions

We have continued to implement our interruptions to supply strategy (ITS) and in 2022/23 we had the best ever performance in relation to minimising water supply interruptions for customers.

We sought to improve our performance by undertaking post-interruption reviews to establish key lessons, utilising water tankers in response to interruption to supply events, and engagement with internal and external stakeholders. We now use emergency restoration trailers containing specialist equipment such as flexible hoses, pumps and cross-connections in order to increase our response capability. We have also purchased a new custom-made pumping trailer that has the capability to pump directly into the water network in an interruption scenario. Both types of trailers were used at events this year, helping to maintain supply to customers.

We have continued to invest in the SMART networks capital programme to maintain a CALM network and increase visibility on all our water assets. Creating a calmer network reduces transients that can cause bursts and interruptions. We will be improving controls at water

base stations and using our new digital tools as well as data analytics through our SMART network to monitor and control our field operations.

Lead Pipes

The water leaving our water treatment works and in the distribution systems contains only trace amounts of lead. However, where lead has been used for supply pipes between the water main and the kitchen tap or in domestic plumbing, there is a risk of non-compliance at the customers' tap. So even with the removal of all lead pipes within our network there will be a risk to lead compliance from lead pipe remaining within customer properties.

We continue keep under review any industry research on alternatives to phosphate dosing for plumbosolvency control.

We inform our customers when we replace lead communication pipes and provide information to raise awareness of the risk for lead pipe within their property and actions that they can take. Information on lead pipes and replacements is promoted on our website. A review of the lead information on our website and in our and lead leaflet was reviewed and updated in 2022 to improve the information on lead and lead pipe replacements for our customers. A media campaign to highlight the risk for lead pipework in customer properties and to encourage customers to replace lead pipework, similar to the campaign which was run in 2021, is planned for 2023. Information on lead pipes and replacements is also promoted on our website.

We continue to engage with stakeholders concerning the potential options for consideration in relation to addressing lead in private supply pipes, including the potential for the establishment of a new grant scheme, to enable private customers to access funds for replacement of their private supply pipe. These stakeholder engagements will help inform a submission to the Minister on options to remove lead from customers private supply pipes.

Wastewater

We achieved our wastewater treatment discharge compliance targets in 2022.

Reducing sewer flooding

Our PC21 Business Plan includes ambitious infiltration and storm water removal targets aimed at reducing risk of property flooding, enhancing our natural environment and facilitating economic growth. This programme is underway, with major investigation work starting in the form of CCTV studies and modelling to enable the future programme to be delivered.

In 2023/24, investigation work is starting regarding storm removal to enable NI Water to meet its targets for PC21. This work will be linked to capital schemes addressing Unsatisfactory Intermittent Discharges (UIDs), out of sewer flooding (DG5) and new development. The PC21 UID schemes are currently undergoing a scope certainty exercise and it is anticipated that the PC21 mid-term review will confirm changes to the PC21 UID programme.

The removal of incidental storm water is expected to increase in line with the increase of our wastewater infrastructure programme throughout PC21. NI Water is investigating opportunities for removal of impermeable surface area to build a programme for delivery in 2023/24 and beyond, having completed modelling early in PC21.

A major storm separation scheme will be completed at Ravenhill Avenue, Belfast removing around 88,200m² of storm water from the combined sewer system.

We are forecasting the removal of 57 properties from the DG5 (properties at risk of flooding) register over PC21. The Ravenhill Avenue scheme is scheduled to complete in 2023/24 and will remove eleven properties from the at-risk register.

Wastewater Compliance

A Wastewater Regulation Compliance Reform Group has been established with senior management representation from NI Water and NIEA. This working group will act as the interface between NIEA and NI Water on the delivery of wastewater regulation reform over PC21. It is recognised that the outcome of the proposed regulation change will result in new evidence, which will highlight non-compliance across our wastewater infrastructure. The group has agreed a revised governance structure for wastewater regulation, refreshed the terms of reference and agreed the road map illustrating the programme of work and projects to be delivered over PC21.

The focus will be to set out a Project Plan for the Reform Programme and review the Wastewater Statement of Regulatory Principles and Intent (SORPI) and/or develop further SORPIs to take account of the regulatory approach for recognised underinvestment, a no detriment approach to dealing with development constraints and reform of wastewater compliance assessment.

Going forward into 2023/24, we will continue to progress delivery of the project plan, focusing on the development of the compliance assessment methodologies and provision of clear messages on the impact of these changes. Identification of investment needs for compliance reform will also be considered in advance of the PC27 Outline Capital Submission in 2024/25.

1.2 Delivering Service to Customers

Our Social Media and digital channels provide us with platforms to keep our customers informed of the challenges we face delivering clean drinking water and recycling wastewater safely back to the natural environment. Our website, Facebook and Twitter accounts allow us to reach out to our customers to change how they think about water to help reduce the pressure on our infrastructure and nature.

Facebook and Web Chat boost

In our ambition to deliver an exceptional customer experience, we are embracing new ways to meet rising customer expectations. Since increasing the operational hours of our social media platforms and introducing a Web Chat to our Service Update Page, our social media base has continued to grow, now surpassing 33,000 followers. Monthly Web Chat usage has also increased by over 100%. Feedback from customers for these channels has been very positive with both Web Chat and social media registering high consumer advocacy scores.

Our customer base for web self-serve also continues to grow. In 2022/23 we launched the web self-serve for developers, providing them with a service to submit applications, track progress and pay online. This is a major step change for the business and transforms the way we interact with our customers. Analysis of our range of social media offerings in comparison to other utilities is encouraging, with around a quarter of our customers now choosing to contact us through a digital channel.

Right First Time

We have introduced a comprehensive programme of initiatives to minimise the need for customers to contact us and for those customers that do make contact, ensure we resolve their issue first time.

During 2022/23, we commenced an end-to-end water quality journey review and made changes to our high-volume call handling process, resulting in a significant reduction in unwanted repeat water contacts. Over 2022/23 we achieved both our 67,000 target for unwanted customer contacts and our First Point of Contact Resolution target of 84%. Our Net Promoter Score (NPS) of 36 compares favourably with other utilities and UK water companies, although it is below the challenging target of 42 set by the Utility Regulator. We also introduced early warning text notifications for metered non-domestic customers experiencing high water consumption.

We continued to introduce robotics to automate manual processes, focusing on how we manage leakage defects that are identified by our contractors.

Over 2022/23 we also continued with our programme of improvement initiatives focusing on septic tank and billing journey improvements.

During 2022/23, we introduced social media and web chat services until 11pm, seven days a week. We continue to offer a range of telephony and self-service channels to suit our customers' needs, including our waterline service, which is available 24 hours a day.

In the UK Customer Satisfaction Index Results for the first six months of 2022, NI Water was named in the top twenty most improved organisations and listed as the second highest performing water company for overall customer satisfaction. In the complaint handling section of the measure, NI Water was ranked second highest out of all 279 registered companies.

Customer Care Register

Our Customer Care Register offers a range of free additional services for those customers who need extra help, such as an alternative water supply when supplies have been interrupted for a prolonged period. We continue to work with Health Trusts, Councils and other utilities to promote our Customer Care Register. A further 128 customers have been added to the register, with a total of 2,822 customers and/or organisations registered. We continue to engage with the Utility Regulator, CCNI and other utilities on the Consumer Protection Programme Best Practice Framework, which will standardise the approach to consumer vulnerability across the Northern Ireland utility sector. We are also liaising with the British Standards Institution and the NOW Group regarding the process for attaining the internationally recognised consumer vulnerability and Just a Minute (JAM) accreditations.

Voice of the Customer packs continue to be circulated monthly to business areas during 2022/23 to provide an understanding of what is working well and to highlight areas for improvement.

Over 2023/24, we will continue with a number of customer journey reviews based upon Voice of the Customer results and insights data. We will undertake our annual omnibus survey to gain the opinions and thoughts of the silent majority of customers that use our services.

Getting Smarter

In response to customers' feedback requesting a modern, interactive web-based platform where they can submit applications for our services, track progress, make payments and digitally sign documents without the need for paper or telephone contact, in 2022/23 we launched a digital application process for new connections to our network, wastewater adoptions and applications for trade effluent.

In October 2022, Intelligent Operations, working together with M&E and Water Production Line, completed the onboarding of the M&E and Water Supply frontline teams into the Mobile Work Management (MWM) automated scheduling solution, ClickSchedule. This major milestone marks the first time that all mobilised teams, across the Customer and Operations Directorate, are enabled in a common work scheduling solution. Owing to the volume of skills data for 125 crews across M&E and Water Supply, the MWM team in Intelligent Operations used robotics to automate the input of this information into ClickSchedule. A comprehensive round of testing and scheduling simulations over several weeks followed to ensure jobs were scheduled to the right operatives, with the required skills in the right priority.

In the months following implementation, Intelligent Operations, M&E and Water Supply observed a range of potential benefits of automated scheduling:

- clear visualisation of daily and weekly schedules in a structured, graphical format;
- improved situational awareness through real-time views of work order status and locations;
- improved prioritisation of work orders and flagging of work orders at risk of missing service levels;
- efficient scheduling solutions due to powerful rules and objective based algorithms and street-level routing; and
- constant updating of schedules throughout the working day.

Additionally, NI Water will benefit from a deeper experience of how future scheduling products can be effectively implemented for our asset-focused teams alongside our customer-focused teams.

Cyber Resilience

Cyber crimes are increasing, both in frequency and in their disruptive potential. These crimes could lead to an interruption in the delivery of our essential services, damage our computer control systems, or lead to a data breach. During 2022/23, we delivered bespoke security training and awareness for staff working with our operational technology assets. Our education campaign involved issuing simulated phishing emails to our staff. The campaign proved to be extremely successful in lowering users' click-rate, as well as increasing cyber awareness. We also undertook an exercise with our cyber insurers to simulate the support that can be drawn upon during an actual incident.

The Cyber Resilience Programme continued to focus on defined projects to improve security of our operational technology environment.

We continue to liaise and collaborate with the National Cyber Security Centre to keep at the forefront of an ever-changing threat landscape and be aware of new methods of attack as they develop.

1.3 Delivering Sustainable Services

Every day we recycle wastewater from Northern Ireland's homes and businesses before safely returning it to the rivers and sea. Traditional treatment works are carbon intensive, requiring a lot of energy, concrete and chemicals to ensure treated wastewater can be safely released back to the environment. We are committed to a more sustainable approach to wastewater treatment and have deployed a number of innovative approaches such as lower energy technologies and nature-based solutions.

We are committed to putting nature at the heart of our decision making. The Water Industry Forum, working with Water UK's Environment Policy Advisory Group members including NI Water, produced a set of principles in 2020/21 on using natural capital type approaches in investment decision making. The principles are seen as a best practice guide for water companies and regulators to help design and apply natural capital type tools, ultimately with the aim of making more sustainable investment decisions and delivering better outcomes for customers and the environment. We continue to pilot the use of multi-capitals decision making on the Living With Water Programme and have a number of activities within our Climate Strategy to support multi-capitals decision making. We plan to roll out the new approach across our investment programme to inform our PC27 business plan.

Nature-Based Decision Making

We are committed to putting nature at the heart of our decision making. The Water Industry Forum, working with Water UK's Environment Policy Advisory Group members including NI Water, produced a set of principles in 2020/21 on using natural capital type approaches in investment decision making. The principles are seen as a best practice guide for water companies and regulators to help design and apply natural capital type tools, ultimately with the aim of making more sustainable investment decisions and delivering better outcomes for customers and the environment. Over 2022/23, the Forum has been developing further guidance on driving best value decision making using a multi-capitals approach. We continue to pilot the use of multi-capitals decision making on the Living With Water Programme and have a number of activities within our Climate Strategy to support multi-capitals decision making. We plan to roll out the new approach across our investment programme to inform our next business plan in PC27 (2027-33).

Source to Tap

The Source to Tap INTERREG VA project officially finished during 2022/23 in the cross-border Derg and Erne catchments. It ran between January 2017 and end of September 2022 and delivered the following:

- **Farming For Water:** Helped 118 farming families make their farm business water friendly. We provided them with practical measures to make land management more sustainable and help protect water quality. This resulted in a 24% reduction in concentration and a 40% reduction in loads of the herbicide MCPA in the raw river water abstracted for drinking water treatment, where weed wiping was substituted across less than 3% of the Derg catchment area where the scheme was trialled.
- **Love Your Water:** Trained 43 volunteers in the Erne and Derg catchments to become citizen scientists, providing them with new skills and new equipment. As skilled guardians, these volunteers will play a vital role in protecting these rivers after the project ends.
- **Learning For Water:** Educated 1,947 children on where their water comes from and the importance of good, clean, safe drinking water; ensuring that they help to protect the water we all rely on to thrive.

- **Forests For Water:** Opened a dialogue on the management of catchments for all ecosystem services. Forestry ecosystems are an important feature in our landscapes and provide numerous benefits to wider society. We have provided evidence of the benefits of enhanced measures to protect water quality from the negative effects of forestry activities.
- **Peatlands For Water:** Trialled an innovative cell bunding technique that others can use to help restore degraded peatland. Over time restored peatland will capture carbon, improve water quality, support biodiversity, and contribute to the climate change solution in Northern Ireland.
- An excellent legacy website containing all details of the project outputs and deliverables, and resources for farmers, water professionals and educators, www.sourcetotap.eu.
- A cost benefit analysis completed in 2022/23 demonstrated that for every £1 invested through pilot land incentive scheme measures projected over the next 30 years, there will be £3.36 worth of benefits through reduced water treatment costs and improved catchment ecosystem services.

Carbon Footprint

Grid electricity accounts for the majority of our operational carbon emissions. We committed to reducing our operational emissions to net zero by 2050, in line with the net zero target for Northern Ireland.

In 2022/23, we increased our purchased grid electricity from renewable sources to approximately 62%, and, additionally, generated approximately 11.8GWh of electricity from a variety of on-site renewable technologies.

We are improving the energy efficiency of our water and wastewater assets through increased control and visibility and continue to develop on-site solar and energy storage installations as part of our PC21 plan.

1.4 Health and Safety

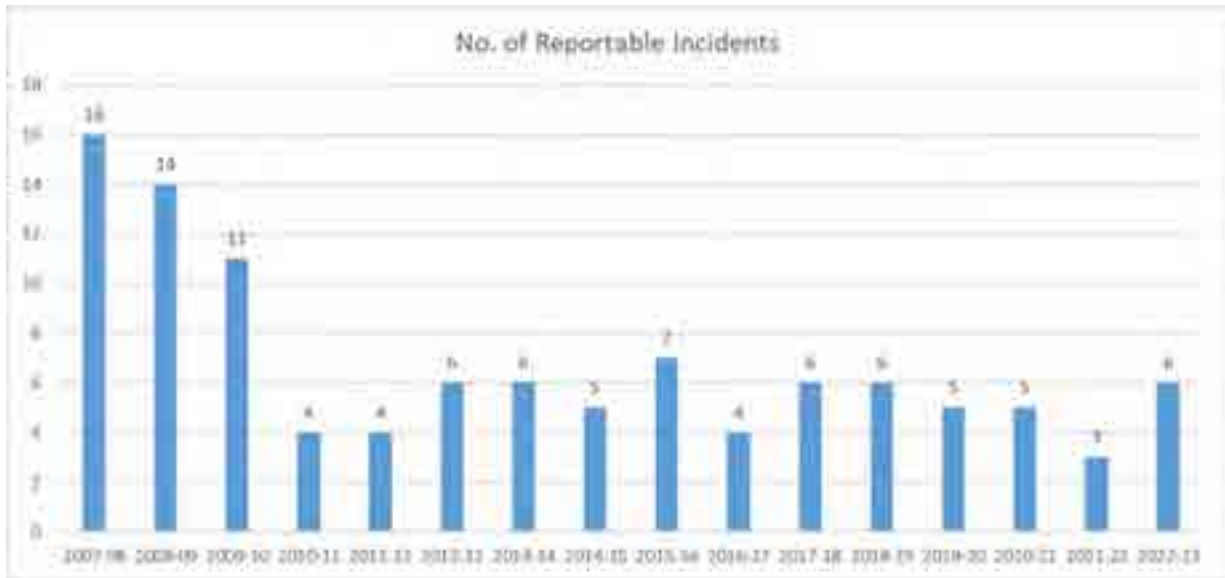
The Assure health and safety software enables all employees and our supply chain to report incidents, unsafe and good observations and safety suggestions via App or Source homepage using a mobile phone, Toughbook, or laptop. Extensive training has been provided across the business. The ability to undertake health and safety audits and spot inspections is also available via Assure; the Risk Assessment module is under development. The system will give NI Water real time, accurate and meaningful data that will allow us to appropriately target and resource both our short and long-term health and safety priorities.

Significant investment continues to be made to both review and/or upgrade our province-wide network of facilities and above ground buildings and related assets. A number of traffic management surveys have taken place at our hubs and largest operational sites; findings have been used to develop improved vehicular and pedestrian traffic arrangements. All identified tasks have been put into the health and safety work programme which is planned to complete by July 2025.

The focus will continue on health and safety arrangements for staff returning to offices and delivery of the health and safety work programme. We will also focus on driver safety over 2023/24. Introductory 'safe driving' workshops will be provided for all staff along with on-line driver safety assessments, associated e-learning driver safety modules and a revised driver manual. A driver intervention framework is also being developed. Significant work remains to be done over the next three years to provide assurance on legal compliance across our

facilities. Other areas of work include delivery of mandatory health and safety training and occupational health assessments.

There were six reportable incidents in 2022/23.



1.5 PC21 Funding

The PC21 Business Plan set out the need for a step change in capital investment. The PC21 Final Determination (FD) endorsed the need to significantly increase the level of capital investment and acknowledged that investment of the magnitude proposed can only be delivered successfully if funding commitment is secured. Whilst Resource DEL and Capital DEL allocations, in line with business needs, were secured in 2022/23, NI Water experienced significant operating cost pressure due to rapidly rising energy prices with an additional RDEL allocation eventually being secured late in the financial year. It is expected that power price rises and other cost pressures will continue to create significant budgetary pressures in 2023/24.

1.6 PC21 Targets for 2022/23

Tables 1.1 and 1.2 below provide a tabular summary of NI Water's delivery of services and outputs in 2022/23 compared to PC21 Final Determination targets. Where appropriate, these have been adjusted to take into account variations resulting from PC21 change controls and carry-over from PC15. The following targets have not been achieved:

1. Properties receiving pressure below reference level (DG2)

A refresh of the DG2 register was completed in 2022/23. This work was identified in the PC21 Business Plan and Final Determination as a 'Development Output'. Consequently, until a new DG2 'baseline' is agreed as part of the PC21 mid-term review, the current PC21 Final Determination targets for properties on the register cannot be achieved. We did, however, achieve the 2022/23 target for the number of properties removed from the register through company action.

2. Net Promoter Score (NPS)

The NPS targets set in the PC21 draft determination (32 in year 1, rising to 35 by year 6) were realistic and challenging; but the increased target in the final

determination (42 in years 1-6) is considered to be overly challenging. During 2022/23, NI Water supported the CM/Sat working group in its reassessment of NPS targets, which we expect to be reflected in the PC21 mid-term review.

3. Leakage:

This year, leakage was impacted by both a significant summer event and a winter freeze/thaw. Full recovery from the widespread impact of this recent event will take some time. Whilst in-month leakage was decreasing markedly by the end of 2022/23, this is not reflected in the outturn for the year because reported leakage is based on a 12-month rolling average.

4. Water Mains

There was a modest shortfall this year due to resourcing issues experienced by water mains contractors during 2021/22. We have regained pace in 2022/23 but not sufficiently to achieve the cumulative target for the first two years of PC21.

5. Security of Supply Index (SoSI)

In the western supply zone, where there is limited headroom, an increase in DI resulted in a small theoretical deficit of 1.23Ml/d, giving a SoSI of 99.9951. The SoSI reporting methodology requires this to be rounded down to 99%. The PC21 investment plan includes the Carmoney to Strabane strategic pipeline, which will provide future resilience to this area.

6. Unsatisfactory Intermittent Discharges (UIDs)

As noted in the PC21 Final Determination, a significant number of the drainage area studies that were needed to confirm requirements and define the UID programme were outstanding at that time. It was anticipated that the content of the programme and the priority of outputs would change as a consequence of this work.

NI Water continues to engage with NIEA as we complete these drainage area studies and develop solutions for the UID programme to ensure that the final list of outputs and the profile for delivery is reflective of need and agreed environmental priorities.

With the submission of “scope certainty” batch 4 (March 2023) and the PC21 mid-term review capital submission in July, we will have clarity around the revised delivery profile for the UID programme.

7. Impermeable Surface Water Area Removed

Our PC21 business plan indicated that the target for storm water removal was of low confidence and a ‘development output’ was included in the final determination. Potential projects are at the early stages of feasibility, and ongoing modelling work (IEM and DAP) is key to defining the scope of each scheme.

With the submission of “scope certainty” batch 4 (March 2023) and the capital submission in July, we will have provided sufficient detail to enable the Utility Regulator’s determination on these schemes as part of the PC21 mid-term review.

Table 1.1 – Targets and Outputs for 2022/23: Customer Service and Water

	Units	Target #	Outturn
DG2 Properties at risk of low pressure removed from the risk register by company action *	nr	292	319
DG2 Properties receiving pressure below reference level at end of year	nr	427	1,780
DG3 Supply interruptions > 12hrs (unplanned and unwarned)	%	0.087	0.000
DG3 Supply interruptions (overall performance score)	nr	0.79	0.15
DG8 % metered customers received bill based on a meter reading	%	99.00	99.77
Unwanted Contacts	nr	66,100	57,327
First Point of Contact Resolved (FPOCR)	%	84.0	84.0
Net Promoter Score (all contacts)	nr	42	36
Total Leakage	MI/d	156	162
Security of supply index	nr	100	99
Percentage of NI Water's power usage derived from renewable sources	%	45.0	62.8
% overall compliance with drinking water regulations	%	99.83	99.91
% compliance at consumers tap	%	99.74	99.88
% iron compliance at consumers tap	%	98.62	99.15
% Service Reservoirs with coliforms in >5% samples	%	0.00	0.00
Water mains activity - Length of new, renewed or relined mains *	km	279	225
Completion of nominated trunk main schemes *	nr	2 ¹	2
Completion of nominated water treatment works schemes *	nr	3 ²	4
Completion of nominated improvements to increase the capacity of service reservoirs and clear water tanks *	nr	1	1
Water infrastructure serviceability	Text	Stable	Stable
Water non-infrastructure serviceability	Text	Stable	Stable
Number of lead communication pipes replaced under the proactive lead replacement programme *	nr	3,688	3,737
Number of school visits *	nr	352	509
Number of other education events *	nr	114	127
Number of catchments where management plan recommendations have been delivered	nr	3	3
Number of treatability studies completed	nr	0	1

Final Determination targets amended to reflect PC21 change controls and PC15 carry-over.

* PC21 cumulative target / outturn

¹ Amended target includes Unagh/Beltoy PS (CCP003)

² Amended target includes Dorisland PC15 carryover; Derg MCP (CCP001)

Table 1.2 – Targets and Outputs for 2022/23: Sewerage

	Units	Target #	Outturn
DG5 Properties at risk of flooding - number removed from the 2 in 10, 1 in 10 and 1 in 20 risk register by company action *	nr	0	6
DG5 Properties on the 2 in 10, 1 in 10 and 1 in 20 risk register at the end of the year	nr	123	102
% of WwTWs discharges compliant with numeric consents [NIW + PPP]	%	91.6	93.8
% of total p.e. served by WwTWs compliant with numeric consents excluding upper tier failures [NIW + PPP]	%	94.7	99.2
Small WwTW compliance (works greater than or equal to 20p.e. but less than 250p.e.)	%	91.09	92.65
Number of high and medium pollution incidents attributable to NI Water	nr	11	9
Sewerage activity - Length of sewers replaced or renovated *	km	20	52
Delivery of improvements to nominated UIDs as part of a defined programme of work *	nr	28	7
Delivery of improvements to nominated WwTWs as part of a defined programme of work *	nr	6 ¹	7
Small wastewater treatment works delivered as part of the rural wastewater investment programme *	nr	12	12
Sewerage infrastructure serviceability	Text	Stable	Stable
Sewerage non-infrastructure serviceability	Text	Stable	Stable
CSO and EO discharges at which event and duration monitoring equipment has been installed *	nr	133	135
WwTWs upgraded to comply with PPC Regulations *	nr	0	0
Impermeable surface water collection area removed from the combined sewerage network *	m ²	729,080	93,098
Number of sustainable WwTW solutions delivered (p.e. ≥ 250) *	nr	0	0
Number of sustainable WwTW solutions delivered (p.e. < 250) *	nr	0	0
Number of current Economic Constraint Areas removed by PC21 investment	nr	0	0
Number of current Serious Development Restrictions removed by PC21 investment	nr	4	6

* PC21 cumulative target / outturn

Final Determination targets amended to reflect PC21 change controls and PC15 carry-over.

¹ Amended target includes Ballykelly PC15 carry-over

Chapter 2

Financial Performance Measures

Table C

2.1 Financial Performance

The financial performance section refers to NI Water (the Group) unless otherwise indicated.

Summary Consolidated Statement of Comprehensive Income

	Year to 31 March 2023 £m	Year to 31 March 2022 £m
Revenue	479.3	441.2
Results from operating activities	105.0	105.4
Net finance charges	(58.6)	59.0
Profit before tax	46.4	46.4
Income tax expense	(5.3)	(78.3)
Profit/(Loss) for the year	41.1	(31.9)
Other comprehensive expenditure, net of income tax	63.2	35.0
Total comprehensive income for the period	104.2	3.1

Revenue has been stated excluding the value of adopted assets (£29.7m) (2021/22: £40.0m) following the adoption of IFRS 15 "Revenue from Contracts with Customers" in 2018/19. It is considered that the adoption of assets creates a long-term obligation to maintain the related assets and therefore the revenue should be spread over the life of the assets through a deferred credit release (£4.1m) (2021/22: £3.8m).

A provision of £1.0m (2022: £1.0m) was retained to take account of the estimated impact of continued economic uncertainty post COVID-19 on our billed customers.

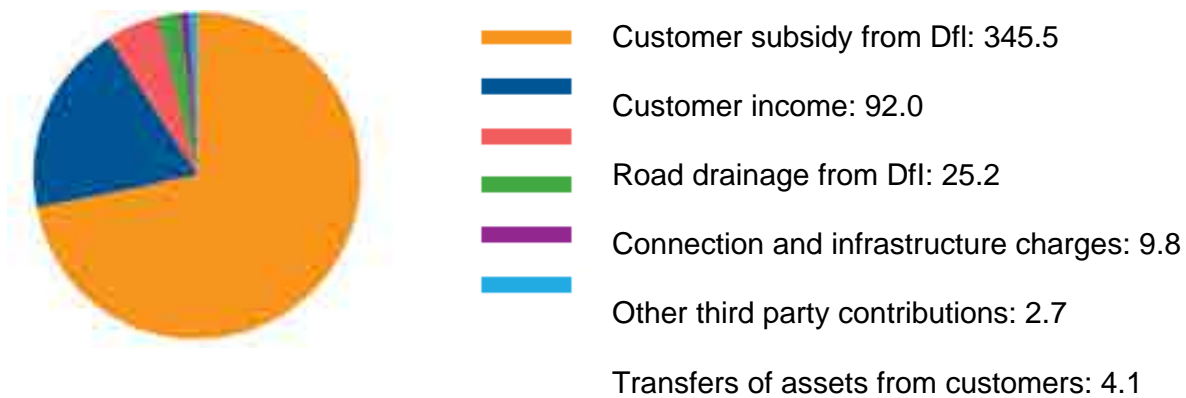
Revenue

Domestic consumers are not charged directly for water and wastewater services. As a result, NI Water is dependent on Government subsidy for 72% of its total revenue.

The customer subsidy from Government covered the full domestic charge and this arrangement will remain in place until 2027.

Revenue was £479.3m for the year to 31 March 2023 (2022: £441.2m). Included in revenue was £370.7m (2022: £341.9m) received from DfI, being subsidy of £345.5m (2022: £318.7m) and road drainage charges of £25.2m (2022: £23.3m). All the revenue was in relation to NI Water Limited as subsidiary revenue was all within the Group.

Sources of revenue 2022/23 (£m)

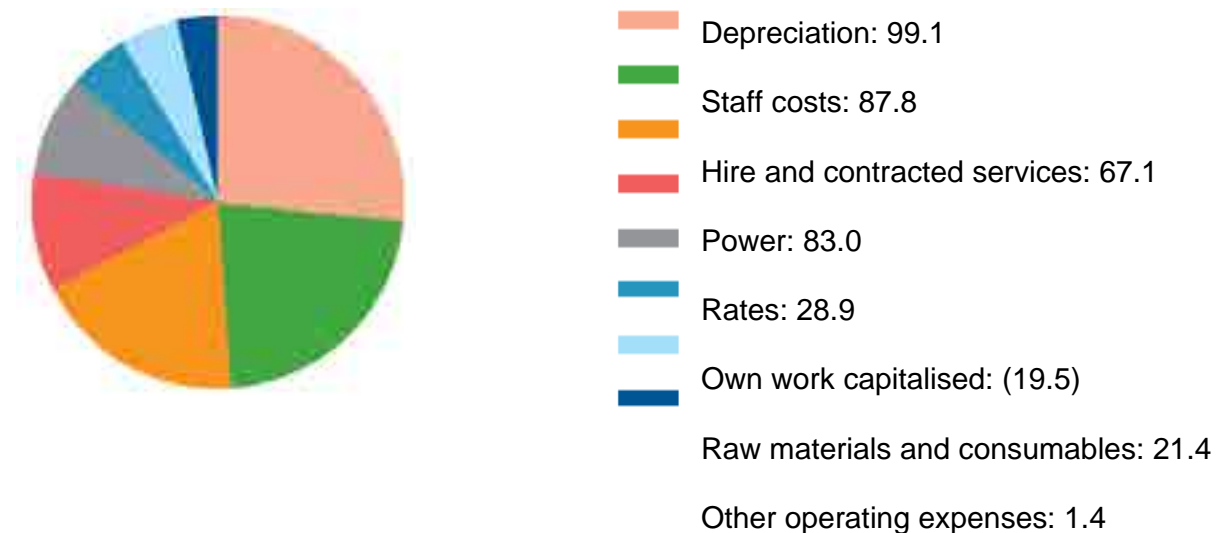


2.2 Costs (capital and operating) against expectations

Operating activities

Operating expenses in 2022/23 of £375.6m (2022: £338.2m) increased from last year. The increase primarily resulted from higher power costs driven by the continued unprecedented increase in wholesale gas prices, higher staff costs and higher depreciation costs as a result of the increased asset base. Results from operating activities before interest for the year was £105.0m (2022: £105.4m).

Operating expenses 2022/23 (£m)



Finance income and costs

The net finance costs are primarily due to interest on our borrowings of £52.5m (2022: £50.9m); our Public Private Partnership (PPP) liabilities of £10.5m (2022: £11.1m) and net finance costs on the pension fund of £0.6m (2022: £1.2m). This was partly offset by £3.5m (2022: £3.7m) fair value increase in the value of financial liabilities and fair value impairment of senior loan debt and bank interest received of £1.6m (2022: £0.6m).

Taxation

The tax charge for the year was £5.3m (2022: £78.3m) for which payment is deferred to future years. The effective tax rate for the year to 31 March 2023 was 11.5% (2022: 168.6%). The significantly higher tax charge in the prior year was largely due to the increase in the rate of corporation tax from 19% to 25% from 1 April 2023. Since the new rate was enacted at the balance sheet date, the deferred tax for 2021/22 was calculated at the appropriate tax rate which was expected to apply when the assets are realised or liabilities settled.

Distributions

The Board will consider a proposal to declare a dividend of £21.0m later this year (2022: £19.0m).

Capital Structure

Total assets increased by 6.1% to £3,994.5m (2022: £3,764.2m).

Our net debt¹ figure was £1,678.3m at 31 March 2023 (2022: £1,526.8m).

Gearing (the ratio of net debt to equity and net debt) was 58.9% (2022: 58.4%).

Summary Consolidated Statement of Financial Position

	At 31 March 2023 £m	At 31 March 2022 £m
Total non-current assets	3,858.7	3,624.9
Total current assets	135.8	139.3
Total assets	3,994.5	3,764.2
Equity	1,172.4	1,087.2
Total non-current liabilities	2,609.4	2,488.6
Total current liabilities	212.7	182.4
Total liabilities	2,822.0	2,677.0
Total equity and liabilities at 31 March	3,994.5	3,764.2

Liquidity

Operating activities generated a net cash inflow of £209.1m (2022: £190.7m). Net cash outflows of £285.7m (2022: £212.7m) related to investing activities. Net financing activities created a cash inflow of £64.4m (2022: inflow £68.3m).

Our working capital requirements are met from a committed working capital facility of £20m and from available positive cash balances.

Interest is accrued on the working capital facility at floating interest rates based on Bank of England Base Rate (previously LIBOR).

Investing activities included the acquisition of property, plant and equipment of £287.4m (2022: £216.7m), proceeds from the sale of property, plant and equipment of £0.4m (2022: £1.7m) and grants received of £0.4m (2022: £2.3m).

Working capital represents the funds available for day-to-day operations. It includes

¹ Net debt consists of loans from DfI of £1,594.6m (2022: £1,439.6m), external loans relating to subsidiaries of £60.7m (2022: £67.1m), derivative financial instruments of £1.0m (2022: £4.5m); and finance leases of £95.8m (on consolidation Alpha finance lease excluded) (2022: £101.5m) less cash and cash equivalents of £73.8m (including £15.3m from consolidated entities), (2022: £85.9m (including £15.8m from consolidated entities))

inventories, trade receivables and trade payables.

Pension funding

The pension scheme was valued as an asset of £46.5m at 31 March 2023 (2022: liability of £29.1m). This was made up of a total market value of assets of £300.1m (2022: £323.0m) less actuarial value of liabilities £253.7m (2022: £352.1m). The decrease in the net liability arises primarily due to material increase in discount rate assumption by 2% which has served to reduce liabilities offset by experience loss allowing for actual inflation.

Capital

We have invested £3,148.2bn in Northern Ireland's water and wastewater infrastructure since our formation in 2007/08.

Around £297m of capital investment was delivered during 2022/23. £174m was invested in maintaining the current assets and a further £124m was invested to deliver quality enhancements, improve service and accommodate growth. Investment of £394m is planned for 2023/24.

2.3 PPP contracts

Kinnegar Wastewater Treatment Works

A contract with Coastal Clear Water Limited was signed on 30 April 1999 for the provision of sewage treatment, which covered the upgrading of the Kinnegar Waste Treatment Works with a capital cost in the region of £11 million. The contract is for 25 years with an end date of 30 April 2024. The cost and net book value of assets included in Property, Plant and Equipment at 31 March 2023 is £13.32m and £5.42m respectively (2022: £13m and £5.29m). The amount included in PPP Creditors at 31 March 2023 is £0.46m (2022: £0.77m).

Alpha

A contract with Dalriada Water Limited was signed on 30 May 2006 for the provision of bulk drinking water supplies. This has a capital cost in the region of £111 million. The service provision commenced roll-out from November 2008. The contract is for 25 years with an end date of 29 May 2031. The cost and net book value of assets included in Property, Plant and Equipment at 31 March 2023 is £131.832m and £78.925m respectively (2022: £129.20m and £80.42m). The amount included in PPP Creditors at 31 March 2023 is £69.96m (2022: £75.02m). With the acquisition by the Group of Dalriada Water Limited during 2017/18 the PPP creditor at group level is eliminated on consolidation.

Omega

A contract with Glen Water Limited was signed on 6 March 2007 for the provision of sewage treatment / sludge disposal at six sites with a capital cost in the region of £132 million. The contract is for 25 years with an end date of 5 March 2032. The cost and net book value of assets included in Property, Plant and Equipment at 31 March 2023 is £154.961m and £95.997m respectively (2022: £153.46m and £99.06m). The amount included in PPP Creditors at 31 March 2023 is £94.00m (2022: £99.03m).

On Balance Sheet Alpha	Alpha £k	Omega £k	Kinnegar £k
Opex	13,109	11,558	1,234
Interest	5,263	10,364	173
Total P&L Impact	18,372	21,922	1,407
Capital Repayment	5,052	5,037	317
Life Cycle Maintenance	1,516	2,018	124
Total Balance Sheet Impact	6,568	7,055	441
Total PPP Payments	24,940	28,977	1,848
Effective Interest Rate used to calculate Alpha finance charge	7.14%	10.60%	24.75%
Estimated Residual Value at End of Contract	£84m	£86.3m	£6.2m

2.4 Regulatory Capital Value (RCV)

The Regulatory Capital Value (RCV) has been developed for regulatory purposes and represents the capital base established for the purposes of setting price limits.

In line with Regulatory Accounting Guideline (RAG) 1.04, this note is compiled using figures assumed in setting prices during the Price Control (PC) process. Figures in the year to 31st March 2023 are therefore consistent with figures contained within the Water and Sewerage Service Price Control 2021-2027 (PC21) published by the Utility Regulator in May 2021.

Within the RCV, the prior year balance and in year capital expenditure have been indexed by the average Retail Price Index (RPI) over the year to March.

	At 31st March 2023 £'m	At 31st March 2022 £'m
Prior Year Closing RCV	2,831.6	2,611.2
Indexation and other adjustments	364.6	148.2
Opening RCV	<u>3,196.2</u>	<u>2,759.4</u>
Capital expenditure	241.7	162.6
Infrastructure renewals expenditure	49.5	26.1
Infrastructure renewals charge	-49.5	-26.1
Grants & contributions	-15.1	-13.6
Depreciation (including capital grants)	-114.6	-76.1
Disposal of assets	-0.8	-0.7
Closing RCV	<u>3,307.4</u>	<u>2,831.6</u>
Average RCV	<u>3,069.5</u>	<u>2,721.4</u>

Chapter 3

Efficiencies

ACE2 Programme

The PC21 Achieving Customer Excellence (ACE2) Programme is designed to achieve customer excellence and continues to be the major vehicle to deliver operational cost and capital expenditure efficiencies and wider benefits. We are optimising the pace at which NI Water transitions to renewable energy, building the capability and capacity to sustainably deliver in asset investment, digitally enabling the Intelligent Operations Centre to better predict and prevent issues and optimise running of our assets.

The Programme is organised into seven main portfolios of projects, quantifying benefits in opex and capex efficiency, new income and carbon reduction. The programme is supported by digital and analytics capability which has continued to drive value through building our business intelligence and insight and also through problem solving and piloting/implementing innovative solutions.

Managed by the Programme Management Office the PC21 Programme Structure, Governance and Resource has been approved and established. ACE2 Programme is progressing to realise Planning for the Future Target of £9.1m Opex benefits for the PC21 period. In Financial Year 2022/23 Opex benefits are forecasted at c. £1.5m (subject to validation by Internal Audit).

The transformational programme represents an ambitious and complex set of business changes. Continuing to collaborate and work together with shared goals and common metrics the PC21 programme plan will move us further along our maturity model into the "intelligent" band, exploiting digital technology, having a whole life view of costs and investments and push us towards becoming a fully "optimised" utility.

Energy

NI Water recognises energy as strategically important to its future. As one of the biggest users of energy in NI, the second largest landowner and with over 3,000 network-connected sites we recognise our responsibility to become a net zero organisation whilst also supporting Northern Ireland to address the climate emergency. Clean energy, low-carbon and digital solutions are widely recognised as the pillars of a better economy.

Recognising that we now face a climate emergency, NI Water has developed our Climate Strategy and opportunities for action. Our deliverables in 2022/23 focussed on developing ambitious plans and innovative solutions to both reduce energy use and explore/deliver Energy Future opportunities for renewable energy. This programme of work is successfully reducing business cost, improving resilience, driving income opportunities and supporting the business journey to becoming a net zero organisation.

Energy Reduce Use

Working with the Analytics team the Energy team has continued to reduce use and improve operational efficiency within the water and wastewater production lines. The development of business analytics platforms and tools - Power BI dashboards and apps provide the data and insights for the project team and operational colleagues to review and analyse to deliver operational improvements and cost reductions (for example: Cost-to-Serve, sub-metering analysis, energy consumption, pumping efficiency, actionable data into our high consuming water pumping stations to understand SEC (kWh/MI/M) & asset performance data).

Through four key workstreams (Water Supply (Abstraction and Production), Water Delivery, Wastewater Collection and Wastewater Treatment and Recycling), work has been progressing in the following key areas: Network optimisation, Process Control Improvements at selected Wastewater sites, Water & Wastewater Pump Optimisation and efficiency, WW Real Time Control, further rollout of Odour Control, LED Lighting, Groundwater abstraction and investigatory work for Hydro Turbine opportunities.

Working collaboratively with:

- operational colleagues to identify and implement energy efficiency improvements in the Water & Wastewater Production Lines within acceptable payback periods to reduce our site operating costs;
- Asset Delivery colleagues, as they deliver a c.£2bn Capital Works Programme in PC21, to ensure energy efficiency is built into the front-end design and incorporated into our asset standards.

This portfolio continues to unlock significant energy savings across our water and wastewater Production Line and asset base. A reduction in energy use reduces energy bought from the grid, operating costs, carbon emissions and provides a better service for customers.

Energy Future

The energy sector and market mechanisms continue to evolve.

This programme of work and team continue to implement new technologies and further innovative changes to address the climate emergency. In conjunction with key external stakeholders, evolving regulation and incentives are presenting new opportunities for NI Water.

Examples include renewable energy projects and moving electricity more “off-peak” - further solar opportunities (pipeline of solar projects - planning, procurement and installation) Merchant/On-site Wind, Electrical Energy Storage Systems (investing in batteries to store power), Electric Vehicles/infrastructure and the Re-greening (tree planting) programme. Plans continue to develop for Hydrogen – Oxygen Ecosystem (development of electrolyzers), Hydrogen Logistics, Hydro (using reservoirs as a potential source of hydro power), Power Purchase Agreements and Resource Hubs.

The Energy Future portfolio continues to pave the way to unlock significant energy savings, making significant contribution to the decarbonisation agenda and the business net zero targets. Delivering the “Power of Water” Energy Future is central to the Business Climate Strategy which has been developed, approved and shared with key stakeholders.

Intelligent Operations

Intelligent Operations is a key element of our Programme. Adopting a new approach to operating and maintaining our water and wastewater assets, we are harnessing the power of smarter ways of working and digital technology to form strengthened Asset Performance, Situational Management and Analytics capabilities.

We are continuing to develop and build our Intelligent Operations capability and ambitions. This is being achieved by evolving our roles and responsibilities and adopting a new operating approach in the three key areas of change:

- Co-location of Customer and Operations teams within the Intelligent Operations Centre “Hub”.

- Smarter ways of working: building capability to become a world class organisation, and
- Exploiting digital technology and harnessing the power of data – accessing a wide range of advanced analytics, Artificial Intelligence (AI) and automation digital technologies that can help us understand and predict what might occur as well as automating actions,

Co-location of Customer & Operations teams within Intelligent Operations Centre “Hub”

The Intelligent Operations “Hub” is now well established, facilitating the co-location of the Customer and Operations Directorate leadership and supporting teams.

The “Hub” facilitates much greater collaboration. Customer teams working alongside Work Control, Telemetry, Metering and Billing, Energy, Water and Wastewater Production Line teams has proven successful and enables everyone to work “Hybrid” together from one centre.

Further co-location planning is well underway with the Capital House Exit Strategy.

Smarter Ways of Working

The Water and Wastewater Production Lines are at the core of delivering our services to our customers and we are continuing to build capability, capacity, resilience and further drive “end to end” efficiencies and new “ways of working” for our business

The establishment of the Strategic Priority Group (SPG) in this financial year is enabling a collaborative approach to align and integrate production line direction with PC21 Intelligent Operations and the Asset Delivery Programme. We are continuing to focus on optimising our production lines, developing our asset performance capability and exploiting data to reduce our cost-to-serve.

We are continuing to develop our Intelligent Operations capability by:

- Focusing on our cheapest sources of supply;
- Developing tools to enhance our Situational Awareness and help us get ahead;
- Utilising cost-to-serve dashboards to help drive efficiency and performance;
- Developing our asset performance capability;
- Trialling smart water and wastewater network trials;
- Establishing the energy management desk with ongoing development of energy desk capability for water and wastewater assets and networks.

Focussed on our customers, we are working to extend our range of contact channels and reduce the need for customers to contact us in the first instance. Productions Lines and M&E are leading and embracing operational innovative technology solutions to improve customer outcomes.

Exploiting digital technology and harnessing the power of data

We are evolving to operate in ‘real time’ to predict and pre-empt adverse impacts to service (better fixes) and to identify the actions that will prevent service failures through data analysis (dealing with the root cause). By being more intelligent at managing the network, customer service will continue to improve and costs will reduce. These activities are

underpinned by longer-term investments in technology that is focussed on enhanced analysis, remote control and automation are developing as part of Intelligent Operations.

The development of Business Analytics Platforms and Tools:

Power BI Dashboards and Apps provide the data and insights for the project team and operational colleagues to review and analyse to deliver operational improvements and cost reductions.

Development of the Cost to Serve tool is enabling colleagues across the business to make more informed operations and business decisions. The dashboard is helping to drive efficiency and performance allowing area and field managers to understand performance and target metrics and then to actively manage all costs within their operation and asset area.

We are continuing to develop tools to enhance our Situational Awareness. We have selected and are trialling the use of analytics, monitors /sensors and third-party suppliers to help accurately identify potential performance improvement initiatives including predicting asset performance

Development of the Energy management desk helps us to reduce our daily energy consumption and costs. Examples include sub-metering analysis, energy consumption, pumping efficiency, actionable data into our high consuming water pumping stations to understand SEC (kWh/MI/M) and asset performance data.

Asset Excellence

Continuing to build our Asset Management capability and better understanding of asset performance is allowing us to make better investment decisions, design better solutions to deliver our major capital works programme more efficiently, innovatively and proactively to support the green economy. We are continuing to promote collaboration with the supply chain, encourage early supplier involvement and continue our drive for excellence in the delivery of our capital programme.

Key areas of focus for the Asset Delivery Transformation Programme include:

- The development of Asset Strategies.
- Collaborative working both across the business and with integrated partnerships enabling a collaborative approach and ensuring earlier engagement with our supply chain.
- Design for manufacture and assembly: The road map for ISO55001 Asset Management has been expanded to include ISO90001 and Reliability Centred Maintenance. We are moving to a more reliability-centred approach to asset maintenance (RCM), which will have benefits in both solution design and operation. Innovative solutions and technologies are being identified and deployed across the business.
- Performance Hub Dashboards: The development of dashboard data and metrics to drive performance via performance hubs across the directorate.
- Tools & Systems and Capability build: Building the skills and capability within Asset Delivery to deliver the capital works programme. This work includes putting tools and

processes in place to support the development of the team and, in particular, the project manager role.

Customer Experience

Achieving customer excellence remains at the heart of the programme. This area of the programme focusses on continuing to deliver a series of digital tools and processes that will drive an enhanced customer service offering and experience.

The Contact Management team is transforming how we engage with customers, including introduction of more proactive and digital contact channels.

The channel shift strategy is focussed on our customers and working to extend our range of contact channels - reducing the need for customers to contact us in the first instance. The development of the Digital Services Platform will enable both domestic and non-domestic customers to access a wide range of NI Water services on demand and on a self-service basis. Phase 2 of the Self Service Portal went "live" in February 2023. Developers and housebuilders can now access a new digital Self Service Portal to apply online for new connections, sewer adoptions and discharging trade effluent.

The CBC Contract has been renewed delivering an outcome and approach that best serves our customers and our business.

The Future Smart Metering Pilot Programme is well underway and Developer Services projects continue to deliver operating model and process improvements.

Value Management – Commercial

The commercial team has established the Commercial Centre of Excellence in line with the Commercial Excellence Design Principles - Strategy, Process and Control, Organisation, People & Culture, Technology and Performance Management.

This Portfolio is focussed on supply chain resilience, managing market volatility, driving value from negotiating lower prices with suppliers, avoiding value leakage in contracts, using data analytics to better understand and manage our contracts and spend, standardising the items we procure, streamlining our internal contract management and purchasing processes both within our commercial teams and for front line employee/managers.

The commercial contract management team is responsible for all strategic and key operational contracts and continues to build capability and drive value through the supply chain.

The Commercial Management Office (CMO) is responsible for providing support & guidance, as well as performance management of all commercial activity. This business performance service has been established to ensure:

- Value is driven from category and contract management and captured through delivered benefits;
- Continuous improvement of commercial processes & procedures; and
- A Performance driven environment with clear targets, measurement and meaningful reporting - all supported by the Commercial Contract Management System (CCMS - Atamis) enabling enhanced information through automated reporting/dashboard.

Due to ongoing economic issues, a key area of focus in 2022/23 was management of the supply chain in terms of engagement, supply chain resilience, cost pressures, assessing the impact of Covid and Brexit and monitoring market volatility. Commercial team contract

dashboards have been developed to understand how contracts are currently being used and to proactively monitor market volatility and cost pressures. Further outcomes have been the delivery of numerous successful collaboration procurement events and the identification and delivery of opex and capex benefit opportunities across the business.

World Class Working

The Performance Excellence Portfolio has been established to:

- Equip the organisation to deliver continuous improvement in a consistent way across all business areas by utilising “Lean” methodology to initiate and deliver sustainable change
- Improve Business Performance by reviewing metrics, using data “insights” and automated reporting to refresh Performance Hubs.

In 2022/23 the focus has been on delivering:

- the EC Performance Hub: aligned to NI Water's five strategic themes an EC Performance Hub Digital Dashboard has been designed and adopted using Power BI to assist in business reporting, prioritisation and decision making, and
- developing an approach for continuous improvement across the business supported by Lean training, tools and techniques. Key stakeholder engagement and alignment with the business Learning and Development Programmes has been an essential part of this work. Building capability and embedding tools and metrics create more efficient processes, remove unnecessary work, automate and boost productivity. This work will align with operational improvements and deliver cost reduction and service improvement as well as helping to continue to establish a culture of continuous improvement.

Business Analytics

Analytics capability has continued to grow and drive value through building up our business intelligence and insight - for example, customer dashboard, asset energy performance dashboards, cost to serve and also through problem solving and piloting and implementing innovative solutions. Funding has been secured for innovative business solutions and Research and Development.

Process reviews, automation and use of data, digital dashboards, analytics and metrics have supported decision making, performance and efficiency. Trend analysis has enabled a more predictive view and scenario modelling has supported the management of risk. This work continues to support water and wastewater Production Line performance and cost optimisation not only in real time but also in the short and medium to long term.

Digital dashboards are providing real value and a “lens” for Customer, Energy, Water and Wastewater Production Lines and continuing to link solutions to Intelligent Operations and Systems thinking.

Work continues on development of the data strategy, next layer of analysis, people development and potential AI applications.

Chapter 4

Competition

There are no developments to report in respect of inset appointment proposals, common carriage or water supply licensing proposals. NI Water has made no requests for common carriage or wholesale water supplies.



Annual Information Return 2023

Section 2

Tables and Commentary

Chapter 1 - Promoting the Efficient Use of Water

This report examines a range of water efficiency activities undertaken by Northern Ireland Water for household and non-household customers over the course of this reporting period. The company is committed to promoting and improving water efficiency for all its customers.

The NI Water Education Team (WET) are continuously adapting their water education programme in response to challenges presented as a result of climate change and population growth which are impacting on demand for water particularly during the summer months. The education team are using more innovated approaches by applying online support and advice for water users through the 'Get Water Fit' platform where NI Water customers can access water saving advice and devices online. This service complements the education programmes delivered to schools and communities and targets those hard-to-reach groups within society.

The Water Education Team (WET) consists of two full time employees who visit schools, community groups, specialist groups and organisations working in partnership with stakeholders and other partners. Approximately 60% of the Educator's time is spent promoting water efficiency.

The key elements of our strategy are as follows:-

1. Efficient use of water in the home -
 - a) ensuring no leaks from taps, toilets, pipe joints etc;
 - b) cistern displacement devices used where necessary;
 - c) efficient use of domestic appliances e.g. full load for washing machine, dishwasher and selecting water saving options on appliances;
 - d) use of showers rather than baths, and using a shower timer to reduce time spent in the showers; and
 - e) shower head and water tap aerators are recommended.
2. Efficient use of water in the garden -
 - a) awareness of the amount of water used through garden hoses and sprinklers;
 - b) encourage the use of a water gun if using a hose;
 - c) encourage the use of water butts;
 - d) use water retaining gels for plant containers;
 - e) encourage use of mulch; and
 - f) plant drought resistant plants.

WET have facilitated a variety of educational/public events:-

- Co-host of Water UK's 'World Toilet Day' – 17 November 2022
- Co-host of Water UK's 'World Water Day' – 22 March 2023
- Waterbus KS2 school visits
- School classroom visits KS2 & KS3
- School assembly visits KS2 & KS3

Events that were attended on request:-

- Garden Show Ireland – April 2022
- Balmoral Show – May 2022
- Maritime Festival (D&SDC) – July 2022
- Citi-Bank Conservation Event – September 2022

- 11 x ECO schools cluster group meetings with local councils, September 2022 - February 2023
- Civil Service Staff Water Conservation Engagement - October 2022
- DUP Party Conference – October 2022
- Lisburn & Castlereagh City Council, Winter Warmer Event – January 2023
- NI Science Event – February 2023
- Southern Regional College - 2023
- Alliance Party Conference, March 2023

Staff who facilitated and attended the above online educational events promoted the practice of water conservation through these online channels and by means of follow-up visits to schools providing leaflets, promotional items and giving advice on using water wisely.

A variety of water efficiency promotional items are used whilst delivering all the above educational events which include:-

- Waterbutts
- Leaky Loo strips
- Toothy Timers
- Shower timers (4 mins)
- Waterwise Leaflet
- Promotional and Educational leaflets
- School water audits
- Water efficiency bookmarks
- Interactive games encouraging conservation
- Save-a-Flush

Water efficiency leaflets are also available for download from the NI Water website along with a printable poster “Stop those drips”.

Household

1. Cistern Displacement Devices (CDDs)

These can be requested by the customer directly through NI Water’s Customer Service Centre (CSC) or from the Save Water Save Money online platform. For 2022/23 NI Water has distributed 739 CDDs.

The calculation for water savings achieved in 2022/23 reporting year is as follows:

$$S*O*F*(D*I) = \text{Savings in litres}$$

S= Savings per flush, O= Occupancy rate, F= Flushing frequency per person per day,
D= Number distributed, I= Installation rate.

Values derived from the Ofwat Water Efficiency Targets were used to estimate the number of CDDs installed. Using the Ofwat Efficiency Report the volume displaced per flush was recorded as 2.5 l/per flush and flushes per person per day as recorded as five. This figure is the average savings per flush achieved through the installation of save-a-flush, which are the CDDs distributed by NI Water. An installation rate of 70% was due to the distribution method used i.e. through requests, schools and community groups. Occupancy rate was 2.5 from NISRA.

Calculation:

$$2.5*2.5*5*(739*0.7) = 16,165.625 \text{ l/per day} = 0.016165625 \text{ MI/d}$$

2. Distribution of Water Butts

During this reporting period, NI Water distributed water butts to schools and the wider community. The total for this year is 171.

The calculation for water savings achieved in 2022/23 reporting year is as follows:

$$S=V*F*1*N$$

S= savings per butt, V=volume of water butt, F= fills per year I= instillation rate, N= number of Water butts. Using the Ofwat Efficiency Report, the volume (200L) is company based (NI Water) and the fills per year is estimated at 6 and the installation rate is 100%.

Calculation:

$$200*6*1*171 = 205,200 \text{ l per year:}$$

$$205,200/365 \text{ days} = 562.1917808219 \text{ l per day} = 0.000562191780 \text{ MI/day}$$

3. Household Water Audits

During 2022/23 self-water audits for domestic households which can be accessed through the company's website received 259 hits. An advantage of the website self-water audit is that as soon as the customer completes the form, the information is emailed directly to WET and this data can then be collated in a spreadsheet to accumulate water usage across NI Water's customer base.

$$D*A*S = \text{Savings in litres}$$

D = Number water audits carried out by company, A = Likelihood acted upon, S = Savings in litres per water audit.

From the figures supplied by the IT division of the Corporate Affairs Team, 259 hits have been recorded for observations of the online water audit.

To calculate the savings achieved through this initiative it is necessary to make assumptions on the savings achieved (Ofwat Water Efficiency Targets). The percentage acted upon is assumed at 10% saving 10 litres per property per day:

The number of online audits recorded

$$\text{Calculation: } 259*0.10*10 = 259 \text{ l/per day} = 0.000259 \text{ MI/d}$$

4. Shower Timers

Over the reporting year 9,835 shower timers were distributed through the Save Water Save Money online platform site. The installation rate of these can be assumed at 23% (Ofwat Water Efficiency Targets).

The calculation for savings achieved in 2022/23 reporting year is as follows:

$$D*I*S = \text{Savings in litres}$$

D = Number of shower timers distributed, I = Likelihood installed, S = Savings in litres per property per day.

Calculation: $9,835 * 0.23 * 5 = 11,310.25$ l/per day = 0.01131025 MI/d

5. Gel Bags

There were 1124 gel bags distributed as part of the allotment group talks and shows. Using the Ofwat Water Efficiency Targets, a saving of 0.1 litres per property per day can also be assumed. Installation percentage would be 25% due to their distributed method.

The calculation for savings achieved in 2022/23 reporting year is as follows:

$$\mathbf{D * I * S = Savings in litres}$$

D = Number of gel bags distributed, I = Likelihood installed, S = Savings in litres per property per day.

Calculation $1124 * 0.25 * 0.1 = 28.1$ l/per day = 0.0000281 MI/d

6. Toothy Timers

There were 685 Toothy Timers distributed through the Get Water Fit online platform.

The installation rate of these can be assumed at 23% (Ofwat Water Efficiency Targets); a saving of 12 litres per property per day can also be assumed.

The calculation for savings achieved in 2022/23 reporting year is as follows:

$$\mathbf{D * I * S = Savings in litres}$$

D = Number of Toothy Timers distributed, I = Likelihood installed, S = Savings in litres per property per day.

Calculation $685 * 0.23 * 12 = 1,890.6$ l/per day = 0.0018906 MI/d

7. Leaky Loo

There were 1170 Leaky Loos distributed through the Get Water Fit online platform.

The installation rate of these can be assumed at 23% (Ofwat Water Efficiency Targets,) a saving of 5 litres per property per day can also be assumed.

The calculation for savings achieved in 2022/23 reporting year is as follows:

$$\mathbf{D * I * S = Savings in litres}$$

D = Number of Toothy Timers distributed, I = Likelihood installed, S = Savings in litres per property per day.

Calculation $1170 * 0.23 * 5 = 1,345.5$ l/per day = 0.0013455 MI/d

8. Water Audits Completed by Company

No audits were completed in the homes of customers for 2022/23.

Presently in Northern Ireland domestic customers do not pay for their water and wastewater services as customers are not metered. Therefore, the only way to help foster change in attitude and behaviour is by demonstrating to the customer how they can financially benefit i.e. save money on electricity, for example by reducing time spent in the shower or reducing the number of showers they have in a week and the number of times the washing machine and or dishwasher is used.

Non-household

NI Water operates a large user discount scheme which is dependent on the commitment of the customer to water efficiency. The customer will have to provide evidence of promoting water efficiency; this may be through changes in procedure, installing water saving devices, installation of recycling plants and the review of water efficiency by an independent industry expert. (www.niwater.com/largeusertariff.asp)

The NI Water website is updated and reviewed on a regular basis. The site has been developed to encourage water efficiency within the commercial customer sector. The areas included are:

- Why Save Water?
- What is Normal Water Use?
- What is a Water Balance?
- Water Efficient Plumbing Appliances?

The website is accessible to all customers with internet access enabling them to source information to assist them in making decisions about water efficiency.

Water Audits

During 2022/23 reporting period 2974 Water Audits were processed through the 'Get Water Fit' online platform.

To calculate the savings achieved through this initiative it is necessary to make assumptions on the savings achieved (Ofwat Water Efficiency Targets). The percentage acted upon is assumed at 20% saving 10 litres per property per day:

D*A*S = Savings in litres

D = Number water audits carried out by company, A = Likelihood acted upon,

S = Savings in litres per water audit.

Calculation: $2974 * 0.20 * 10 = 5,948$ l/per day = 0.005948 MI/d

No Commercial Audits were distributed during this reporting period. The document is available on-line as an advice leaflet for business customers titled "Advice for Business Customers" with an additional document "Business Water Audit". Due to cost restrictions, these leaflets have not been published but are easily available on the NI Water website.

Savings and Costs

These savings have been achieved by adding together -

- Household-Water Efficiency Methods
- Non-Household-Water Efficiency Methods
- Other Water Efficiency Methods

Leakage: No savings or costs are sustained by NI Water through supply pipes being repaired, as NI Water does not operate a free/subsidised repair/replacement scheme. If NI Water repairs any leaking supply pipes, this will only happen after a leakage notice has been issued and the customer has failed to carry out sufficient work to rectify the problem. NI Water will then repair the supply pipe and any cost will then be charged to the customer.

Water Efficiency Methods

We believe it is imperative that children and young people have a greater understanding of how water shapes all our lives and the environment. We are also aware that school children can influence the behaviour of family members - both adults and siblings - through “pester power”. Based on this fact, tailored programmes were developed to achieve changing behaviour and attitudes in line with NI Water’s key water efficiency messages and assist us in connecting with those hard to reach within communities.

During this reporting period the WET facilitated **63** community visits/events delivering our key message on water conservation. There were also **210** KS2/KS3 school visits promoting water conservation within a classroom and assembly setting delivered over this past year, with the majority of these being provided on a weekly basis and working in conjunction with the ECO Schools Award scheme and within the NI education curriculum. This service has been well received by the Education Authority (EA) and over this reporting year we have reached **16,167** KS2 and KS3 pupils during 2022-23 school year with our key messages on water efficiency.

Given that education visits are NI Water’s most effective method of delivering their key Water Efficiency messages, the education team have continued with their already established innovative approach of delivery to reach communities and wider society.

Conservation classroom presentations were delivered over this past year, with the majority of these being provided on a weekly basis and working in conjunction with the Eco Schools Award scheme. During this period, we also seen the return of our double decker Waterbus which had been previously withdrawn due to Covid-19. The Waterbus is a mobile educational classroom and provides presentations, displays, experiments, quiz, demonstrations, multi-media and computer facilities. This mobile facility aims to make children aware of the range of water topics and issues such as the water cycle, water for health, water sources, water/wastewater cleaning and water efficiency with all programmes designed for Key Stage 2 (P5-P7) within the revised NI curriculum.

NI Water has a Wastewater Heritage Centre site at Duncrue Street, Belfast. This location provides an insight into the history of water supply and removal of wastewater along with the importance of why we should not waste water. We consider educational interaction with schoolchildren to be the vital link with parents, bringing news and promotional items home and encouraging them to become more water efficient and be aware of the value of water management. Key Stage 3 talks by NI Water’s Education Team have also continued during this reporting period and have seen a continuous demand for these visits.

Also, during this period we continued the partnership with ‘Get Water Fit’ which is an online platform where NI Water customers would go online and complete a household water audit of their daily water usage and in return would avail of free water saving devices in areas of need that were identified through the audit and delivered straight to their homes.

Interactive Education & the Community section on NIWater.com

NI Water has dedicated website pages with advice on household and commercial water efficiency. Included in these pages is a domestic self-water audit, which allows domestic

customers to calculate their average daily consumption per resident. This audit has the added benefit of doing calculations automatically and provides NI Water with completed audits instantly once the customer has submitted it. The website also includes guidance on the types of appliances that could be installed into homes and business, which would help them to become more water efficient in the future. During this past year, NI Water's education site which includes water efficiency tips has had **659** views and we have also seen **396** customers using our online water saving calculator.

www.niwater.com/education-and-the-community/

Over this past year we have continued to update the Education & Community section on our website with rich, informative content focused on informing water users about our key messages.

The extensive interactive content is used to not only educate users but also to position NI Water as a key stakeholder in the community, addressing important water use issues with a slightly more informal tone of voice.

The content is primarily targeted at school pupils with an animated design but is equally accessible by adults. It has been benchmarked against other leading water companies' equivalent sections and has been built with future proofing in mind by using non-native code platforms.

Main interactive sections:

- **Bag it & Bin it**
www.niwater.com/bag-it-and-bin-it-interactive/

Scrolling content building on the key "Bag it and Bin it" message and the importance of not flushing the "dirty dozen" down the toilet.

- **Water Saving Calculator – How much water do you use?**
www.niwater.com/why-save-water/

The calculator is designed to provoke awareness and thought on how much water households are wasting.

- **Silent Valley**
www.niwater.com/silent-valley/

This sub-section promotes Silent Valley as a visitor destination for families, groups and schools:
 - Image Gallery
 - Walking trails map
 - How to get there - embedded Google map for users to find directions from their address; and
 - Visitor information, downloads, podcasts.

Print, Broadcast and Online Media Value

Throughout this past financial year, NI Water's Communication Team have been proactive in promoting water efficiency through various media campaigns. The Communications Team delivered several media campaigns (including social media) around promoting water efficiency, including tips on how best to conserve water. An investment of **£153,943**

financially supported this message which engaged customers on a wider scale and made them think about how important water is in their daily lives. The team used a mix of communication channels in this campaign from radio, print, online and social. Animated videos were used on social media to highlight the amount of water a swimming pool and power hose use as these were popular during the hot weather. There were also a range of Vox Pop and YouTube Videos created to reach a wider audience.

Also, this past year we have seen how NI Water have been active in encouraging water efficiency through educational and community campaigns. Another mechanism of raising the importance of water efficiency has been through the use of media. The Water Efficiency campaign generated **475** articles (print, broadcast, online), media items between April 2022 and April 2023, generating **£3.01m** financial PR value with a **133.8** million potential reach.

We also ran a new advertising and PR campaign, Save Water, Save Energy, Save Money in Spring 2023, emphasising to the public that by taking shorter showers, filling kettle less and putting on full loads in dishwasher and washing machine, not only were you saving water, but you were also saving energy which is a win for your pocket and the environment.

NI Water also highlighted throughout the year the issue of water efficiency and in particular the potential for frozen pipes as part of its "Winter Preparation Campaign". Beware of frozen pipes and calls to be mindful of water usage were the main drivers of both the reach potential and AVE value for 22/23's Winter Preparation coverage. The campaign generated **150** articles (print, broadcast, online), media items relating to NI Water's Winter preparation between November 2022 and February 2023, generating **£661k** financial PR value with a **31.5** million potential reach. The communications surrounding the Freeze/Thaw incident of 2022 also contributed to this reach.

Some of the campaigns are as follows:-

- April Showers and Shorter Showers
- Save Water, Save Energy, Save Money
- Be mindful of water usage
- Winter Preparation Campaign
- Beware of frozen pipes
- Watersafe promotion

Efficiency Method	Total	Cost £	Savings per MI/ day
Household			
Measurable Methods			
Cistern Devices (0.57p each)	739	421.23	0.016165625
Water butts (£24.52 each)	171	4,192.92	0.000562191780
Self-audit (On Line)	2974		0.005948
Total	3,884	4,614.15	0.02267581678
Other Measurable Methods			
Shower timers (£0.68 each)	9835	6,687.80	0.01131025
Gel Bags (£0.31 each)	1124	348.44	0.0000281
Toothy Timers (£0.83 each)	685	568.55	0.0018906
Leaky Loos (£0.49 each)	1170	573.30	0.0013455
Education Depart (UKWIR)		57,326.75	1.3034763
Total	12,814	65,504.84	1.31805075
Leaflets			
How water wise are you (0.10p each)	1526	152.60	
Freezing Pipe (0.17p each)	140	23.80	
Total leaflets	1,666	176.40	
PR items			
Bookmark- "Flo" kids (0.07p each)	5080	355.60	
Game: Snakes and Ladders (0.18p each)	11	1.98	
Stop Tags (0.43p each)	2645	1137.35	
Tap cover (£4.66 each)	0	0.00	
Ice scraper (0.73p each)	0	0.00	
Thermometer (0.76p each)	0	0.00	
Total PR	7,736	1,494.93	
Total		71,790.32	1.34072656678

NI Water has a large range of leaflets that promote water efficiency; the distribution of these may also lead to increased water savings but at present these savings cannot be calculated, but the costs for this year is £176.40.

Assumed Savings

Household-Water Efficiency Methods = **0.02267581678**
 Other Water Efficiency Methods = **1.31805075**
 The total recorded savings are = **1.34072656678** MI/d

The work of the Education Department has continued to significantly improve NI Water's water efficiency figure. This can be demonstrated through the behavioural change activity which has led to our customers becoming more efficient in their use of water and the UKWIR method is now being used to quantify the water saving benefits for "softer measures" (2010 Reporters recommendation 1, (document reference) T1niw.R10 P1 S2).

The UKWIR spreadsheet WR25 “Estimating water saving calculator for baseline water efficiency” has been used. These activities have been apportioned between Medium and High Levels of engagement.

This is summarised in the following table:

Level of Engagement	MI/day
High	0.38
Medium	0.075
Totals	0.455

Using the UKWIR Methodology, which as previously mentioned was recommended by the Reporter, has resulted in a general improvement in water efficiency measurement for the company.

Year	Assumed Savings
2009/10	0.048 MI/day
2010/11	0.216 MI/day
2011/12	0.264 MI/day
2012/13	0.227 MI/day
2013/14	0.219 MI/day
2014/15	0.304 MI/day
2015/16	0.299 MI/day
2016/17	0.517 MI/day
2017/18	0.502 MI/day
2018/19	0.782 MI/day
2019/20	0.830 MI/day
2020/21	0.199 MI/day
2021/22	0.489 MI/day
2022/23	0.455 MI/day

NORTHERN IRELAND WATER LIMITED - ANNUAL INFORMATION RETURN

ANNUAL INFORMATION RETURN - TABLE 2 KEY OUTPUTS
WATER SERVICE - 2 (TOTAL)

DESCRIPTION	UNITS	DP	1	2	3	4	5	6	7	8	9	10	11	12
			REPORTING YEAR 2015-16 CG	REPORTING YEAR 2016-17 CG	REPORTING YEAR 2017-18 CG	REPORTING YEAR 2018-19 CG	REPORTING YEAR 2019-20 CG	REPORTING YEAR 2020-21 CG	REPORTING YEAR 2021-22 CG	REPORTING YEAR 2022-23 CG	REPORTING YEAR 2023-24 CG	REPORTING YEAR 2024-25 CG	REPORTING YEAR 2025-26 CG	REPORTING YEAR 2026-27 CG
A DG2 PROPERTIES RECEIVING PRESSURE/FLOW BELOW REFERENCE LEVEL														
1 Total connected properties at year end	000	1	838.7 A2	852.4 A2	863.0 A2	874.3 A2	883.4 A2	892.9 A2	902.7 A2	910.1 A2				
2 Properties below reference level at start of year	nr	0	1,082 B3	900 B3	862 B3	711 B3	719 B3	626 B3	578 A2	1,715 B3				
3 Properties below reference level at end of year	nr	0	900 B3	862 B3	711 B3	719 B3	626 B3	578 B3	1,715 A2	1,780 B3				
4 Properties receiving low pressure but excluded from DG2	nr	0	0 B3	0 B3	0 B3	0 B3	0 B3	0 B3	0 A2	0 A2				
4a DG2 Properties with pressure below a surrogate level of 7.5m at end of year	nr	0	126 B2	124 B2	103 B2	125 B2	128 B2	107 B2	208 A2	177 B2				
4b DG2 Properties at risk of low pressure removed from the risk register by company action	nr	0	171 B3	40 B3	175 B3	176 B3	115 B3	168 B3	176 A2	143 B3				
4c Average capex cost of permanent solutions to DG2 problems	€000/prop	1	13.9 B2	26.8 B2	9.8 B2	4.7 B2	18.7 B2	4.7 B2	11.4 B2	3664.8 B2				
B DG3 PROPERTIES AFFECTED BY SUPPLY INTERRUPTIONS														
(i) UNPLANNED INTERRUPTIONS														
5 More than 3 hours	nr	0	105,236 A3	90,094 A3	108,386 A3	58,816 A3	49,181 A3	24,443 A3	35,321 A3	15,495 A3				
6 More than 6 hours	nr	0	8,699 A3	5,128 A3	6,097 A3	3,509 A3	6,157 A3	1,834 A3	13,581 A3	1,322 A3				
7 More than 12 hours	nr	0	841 A3	494 A3	861 A3	308 A3	751 A3	0 A3	710 A3	0 A3				
8 More than 24 hours	nr	0	32 A3	0 A3	0 A3	0 A3	29 A3	0 A3	12 A3	0 A3				
(ii) PLANNED AND WARNED INTERRUPTIONS														
9 More than 3 hours	nr	0	33,929 A3	35,484 A3	38,225 A3	38,289 A3	28,245 A3	5,306 A3	5,103 A3	2,504 A3				
10 More than 6 hours	nr	0	13,767 A3	13,247 A3	14,809 A3	7,313 A3	11,463 A3	743 A3	1,724 A3	210 A3				
11 More than 12 hours	nr	0	0 A3	0 A3	0 A3	0 A3	0 A3	0 A3	0 A3	0 A3				
12 More than 24 hours	nr	0	0 A3	0 A3	0 A3	0 A3	0 A3	0 A3	0 A3	0 A3				
(iii) INTERRUPTIONS CAUSED BY THIRD PARTIES														
13 More than 3 hours	nr	0	4,739 A3	12,691 A3	4,078 A3	12,089 A3	2,712 A3	2,183 A3	1,664 A3	816 A3				
14 More than 6 hours	nr	0	476 A3	842 A3	1,145 A3	2,790 A3	166 A3	300 A3	240 A3	343 A3				
15 More than 12 hours	nr	0	0 A3	30 A3	193 A3	0 A3	0 A3	0 A3	31 A3	112 A3				
16 More than 24 hours	nr	0	0 A3	0 A3	0 A3	0 A3	0 A3	0 A3	5 A3	112 A3				
(iv) UNPLANNED INTERRUPTIONS (OVERRUNS OF PLANNED INTERRUPTIONS)														
17 More than 6 hours	nr	0	1,141 A3	1,611 A3	1,630 A3	159 A3	222 A3	0 A3	89 A3	12 A3				
18 More than 12 hours	nr	0	159 A3	417 A3	1,107 A3	0 A3	0 A3	0 A3	0 A3	0 A3				
19 More than 24 hours	nr	0	140 A3	0 A3	0 A3	0 A3	0 A3	0 A3	0 A3	0 A3				
C POPULATION														
20 Population (winter) (total)	000	2	1,874.73 C2	1,887.10 C2	1,896.46 C2	1,900.66 C2	1,914.48 C2	1,905.05 C2	1,910.42 C2	1,939.70 C2				
D DG4 RESTRICTIONS ON USE OF WATER														
21 % population - hosepipe restrictions	%	1	0.0 A1	0.0 A1	0.0 A1	93.4 B2	0.0 A1	0.0 A1	0.0 A1	0.0 A1				
22 % population - drought orders	%	1	0.0 A1	0.0 A1	0.0 A1	0.0 B2	0.0 A1	0.0 A1	0.0 A1	0.0 A1				
23 % population - sprinkler/unattended hosepipe restrictions	%	1	0.0 A1	0.0 A1	0.0 A1	93.4 B2	0.0 A1	0.0 A1	0.0 A1	0.0 A1				

Table 2 – Key Outputs - Water Service - 2

Line 1 - Total Connected Properties at Year End

NI Water's data on property counts and classifications is reported monthly from RapidXtra within the Rapid Property Summary (RPS). The data is extracted from the Diamond Warehouse via Microsoft SQL Server to produce the RPS report.

Our AIR23 methodology has remained consistent with previous years – using the automated Property Model tool to populate Table 2 figures (this was first introduced in AIR12 – the RPS as the input).

The RPS provides us with a snapshot at the end of each month in terms of net movement; however it alone does not support in the explanation of gross movements within the data. With this in mind, during the 22/23 reporting year the C&OD Services MI & Data Team explored the use of Power BI to re-create the RPS with a drill down function to display the gross movement. The Power BI property models developed take their direct feed from the Diamond Warehouse in order to refresh. These models provide us with information on gross movements and allow us to 'slice and dice' the data from various angles, providing invaluable insights. The plan is to further enhance and incorporate these models across the business during 2023/24.

Customer/Property information is updated through:

- BAU ('business as usual') customer contacts, such as new connection requests, customer move in/move outs, or
- through Data Quality initiatives/Projects, and/or
- Metering work streams e.g. UNHH (Selectives), Optants, and Proactive Meter Exchange etc.

Under the Water & Sewerage Services (2006) Order, NI Water were required to install meters on all new household connections from April 2007. This practice has stopped as directed by a change in legislation, which took effect in July 2016. The legislation was amended by Regulations, which in effect relieved NI Water of the obligation to install meters at newly connected domestic properties. As domestic customers are not charged on a measured basis, the property is reported as unmeasured. Some domestic properties were initially reported as measured in AIR10 but this was rectified as per the erratum to AIR10. Depending on the basis for charging when domestic billing is introduced, these customers can be activated as measured household if required.

The difference between the AIR22 and the AIR23 figures is 7406. The breakdown can be explained as follows:

1. New Connections during the 2022/23 reporting year. The figures are based on data supplied by our Customer Connections Team and represent completed connections during the reporting year. The projections for New Connections remain in line with the agreed PC21 forecasts.
2. Added as a result of a customer contact. i.e. septic tank empty request, no water complaint, blocked sewer, updating of standing data e.g. removal of services etc. Within this category there are 2 scenarios:
 - (a) The adding of properties NI Water allegedly did not know about
 - (b) The adding of duplicates as the customer's address could not be found on Rapid. Rapid may hold the site number but when the customer contacts NI Water, they quote the verified postal address, which is different, therefore creating a duplicate. The street name may also have changed from the time

of New Connection to that of customer contact (street names can change in the early stages of site development).

3. Removal/reclassification of properties as a result of data quality initiatives/projects
 - a. Duplicate properties
 - b. Reclassification of properties that were recorded in error
4. Change in occupancy status – movement from void/vacant to occupied and vice-versa.

For NI Water, accurate property data is fundamental for many systems and processes, including customer service, metering, billing, consumption, leakage and Major Incident Planning & Response. The Rapid Customer Contact System contains the master property data for NI Water.

As Data Owner for Property Standing Data, The Head of C&OD Services is responsible for the property standing data held by NI Water; this is monitored and managed through the Corporate Property Register (CPR) Project. The C&OD Business Services MI & Data Team chair this group.

The role of the CPR project is to agree a single consistent source of property data and to ensure that there is appropriate governance, controls and reporting for changes made to core data on the system. As Property Data Owners, we need to ensure the processes around creation, maintenance and demolition of properties are governed and appropriate control points and associated reporting are in place. Control is key for us; as such we have identified the systems, processes and people using property information across the business, alongside confirming data accuracy and endeavouring to reduce the opportunities for erroneous data entry and creation (such as the inability to recreate demolished properties or duplicate properties).

The issues under consideration were identified as of corporate relevance, therefore, to ensure appropriate direction and governance the CPR was formalised. Key objectives include:

1. To agree a single consistent source of property data.
2. To ensure the source property data represents accurate, up-to-date information appropriate for use by the business.
 - a. To understand and agree data primacy in respect of data updates from NI Water and external (Land & Property Services - LPS) sources.
 - b. To ensure the processes around creation (i.e. New Connections), maintenance and demolition of properties are governed and appropriate control points and associated reporting are in place. i.e. through data validation.
 - c. To co-ordinate property reconciliations between NI Water & external sources i.e. Data Sharing Agreements between NI Water & LPS, NI Water & Belfast City Council (BCC) etc and understand the reasons and validity of any differences.
 - d. To understand and ensure the adequacy of long term procedures for database maintenance, including the updating of data standards and associated CDE M&M Plans.
3. To ensure the reporting requirements for the business are met relating to data held on Rapid, particularly, but not exclusively, in respect of tariffs, leakage, Annual Information Returns (AIR) & Principal Statement (PS) returns.
4. Challenge the data in the areas of
 - a. Data categorisation & structure.

- b. Data robustness – i.e. where is our data good and where is there opportunity for improvement? Identify projects that could aid improvement.
 - c. Data alignment – both internally and externally. Internally between systems such as Rapid, Ellipse, GIS, Diamond, Netbase, IMS etc. Externally through data reconciliations, such as LPS above.
5. To agree measures to improve the quality and integrity of the data, particularly the key CDEs as monitored by IMU.
 6. To agree the content and frequency of reports required by NI Water.
 7. To agree the quality checking criteria for the above data and reporting and develop a Quality Plan including the determination of responsibilities and audit trails.
 8. To produce & circulate an 'operate and maintain' programme for property data to the business.

The focus for the CPR project remains the same, including analysis and action on:

- Creation of an agreed single consistent source of property information, running alongside the CBC3 timelines.
- Volume of properties coming onto the Rapid billing system on a monthly basis
 - new connections
 - customer contact
 - project work
- Volume of properties coming off the Rapid billing system (demolished)
 - sample check to ensure reason for demolition has been noted and on system audit trail recorded
- Volume of properties amended on the Rapid billing system
 - In particular, address fields -> building number, street name, town and postcode
 - sampling to identify if the data changes are data improvement or data regression
 - if data regression, further analysis into the process is undertaken
- Review of access privileges
 - Rapid audit
 - Through monthly audit samples
 - Internal CRs require sign off from CPR team as BAU
 - Working with Echo to review access privileges on an ongoing basis
- Interruptions to supply notices – returned mail
 - This returned mail has been previously brought to the attention of LPS and include properties that LPS have classified as live properties despite being returned as 'no such address' etc
 - The 2 way communication with LPS will help underpin our governance work and provide direction to the business on practices

Annex A details the Line Methodology followed by the figure for Table 2 Line 1.

Line 2 – Properties below the reference level at start of year

The number of properties on the Register at the start of the year was 1,715, as reported in line 3 of the previous AIR submission.

Line 3 – Properties below the reference level at end of year

As per the regulatory guidance, as issued and directed by Utility Regulator, this line includes properties within a 10m height of service reservoirs.

It should be noted that NI Water will not be able to provide such properties with adequate pressure through normal hydraulics; however they will be included in the DG2 register. The

final number of properties recognised as being below the reference level at year end is 1,780.

The year-end figure is the direct result of removals due to Company Action as well as additions identified throughout the year. Throughout this process a surrogate pressure of 15m head in the adjacent water main has been adopted as the reference level. All properties removed from the Register during the reporting period are supported by a report and appropriate logged data. The removals process is as per NI Water's methodology and is consistent with previous AIR submissions.

Line 4 – Properties receiving low pressure but excluded from DG2

As per the Utility Regulator determination, properties within 10m are no longer excluded from the DG2 Register. Therefore there are currently zero properties that are justifiably covered by the exclusions as per the DG2_LoS_Methodology document. It should be noted that NI Water will not be able to provide such properties with adequate pressure through normal hydraulics.

Line 4a – DG2 properties with pressure below a surrogate level of 7.5m at end of year

A query of the DG2 register confirms that 177 properties experience a pressure below the 7.5m surrogate level.

Line 4b – DG2 properties at risk of low pressure removed from the risk register by Company Action

Calculation of the total number of properties removed as a direct result of Company Action is generally achieved by adding the properties identified by removal reports resulting from both capital intervention and operational improvements.

Table 1

Removals Due to Company Action	Number
Capital Intervention	106
Operational Improvements	37
Total	143

The final number of properties removed due to Company Action is recorded in Table 1 above as 143.

Line 4c - Average Capex cost of permanent solutions to DG2 problems

The Utility Regulator issued guidance in April 2011 for AIR11 Table 2 which included additional reporting lines for average cost of removing DG2 properties from the Register as a result of Company Action.

This is the second year of PC21 for which the company is reporting this figure and it will allow the benchmarking of NI Water costs. The variability of cost per property removed as outlined in the table below is reflective of the current method of delivery of the Water Mains Rehabilitation Programme (WMRP). Work packages have multiple drivers and assignment of costs to DG2 removal relies on the use of the Enhancement part of the CIDA allocation for the schemes below rather than directly attributable costs. (And includes individual schemes for clusters of properties rather than arising from individual projects designed solely to remove DG2 properties.) NI Water will continue to develop these reporting lines to deliver a more robust process for attributing costs to DG2 properties.

As PC21 progresses more tailored Work Packages are being developed to specifically deal solely with DG2 issues. To date in PC21, three work packages of DG2 schemes have been issued to the Asset Delivery team for construction.

The refresh of the DG2 Register began in 2021/22 and is now complete and there has been a sharp and significant increase in the number of properties on the DG2 Register due to the refresh.

The number of properties on the register at the start of the PC period was 578. This increased to 1,715 properties by the end of the 2021/22 year and then to 1953 properties during 2022/23 as a result of the DG2 Refresh programme (ie a net increase in the register of 1,375 properties). At the end of the 2022/23 year this now stands at 1780 properties.

The scheme costs and number of properties removed from the register this year are reported for each WP below where a PPRA/DIR report was produced. The costs included are for mains, with the primary justification for rehabilitation listed as “Hydraulic,” which were generally replaced with a larger size of main. These mains may have a secondary structural or water quality driver also but there was no cost reduction for asset maintenance or quality enhancement applied. This matches the approach used for CIDA allocation at A1 gateway approval stage.

OUTPUT 2022/23 Capital Intervention

173 DG2 properties were removed from the register during 2022/23 of which 143 were removed through company action and 30 were removed through better information. Of the 143 that were removed through company action, 106 were removed by capital investment and 37 were removed by operational interventions such as DMA rezoning.

PPRA reports covering a) Drummurrer Lane and Annaghboe Road, Coalisland b) Crewbeg WPS Area, Tandragee c) Morey Hills, Donaghadee and d) Back Road, Ballyhalbert were produced during 2022-23 which removed 106 properties from the register by capital investment.

OUTPUT 2022/23 Zero Cost Operational Interventions

Operational Intervention Schemes by means of rezoning were conducted at d) Bencrom Park, Rathcoole e) Moat Road, Ballyhalbert and g) Rathmore Road, Bangor which removed a further 37 properties from the register. These are all detailed in the Table below.

Table 7

WP Title	DG2 Properties Removed	Total Cost £	Cost Per Removal £
Capital Investment Schemes			
Drummurrer Lane and Annaghboe Road	10	124,453.02	12,445.30
Morey Hills, Donaghadee (Ballyvester Road)	72	248,804.76	3,455.62
Cumulative sub total Removals	82		
Opps Capital Investment Schemes			
Crewbeg WPS Area, Tandragee	22	9,660.73	439.12
Back Road, Ballyhalbert	2	5,546.40	2,773.20
Cumulative Sub Total Removals	106		
Operational Intervention Schemes			
Bencrom Park,Rathcoole	25	N/A	N/A
Moat Road, Ballyhalbert	5	N/A	N/A
Rathmore Road, Bangor	7	N/A	N/A

WP Title	DG2 Properties Removed	Total Cost £	Cost Per Removal £
Cumulative Sub Total Removals	143		
This year's target is 145(-29 C/F from 2022/23) = 116			
TOTAL Pro Active NIW DG2 Removals 2022-2023	143 achieved against 116 target	388,464.91	
Average Cost per DG2 Removal			3,664.76

Therefore, the average overall cost of removing a DG2 property from the register is obtained by dividing the total cost £388,464.91 by the total number of properties removed (106 for this year) utilising the EP Budget. Average removal cost is therefore

Average cost per DG2 removal = £3,664.76

The replacement mains and Water Pumping Stations were sized using the current peak demand model. The design criteria was to meet the minimum pressure level of service of 15m at every property. Hydraulic head losses were generally kept below 1 m/km and velocity at an optimum 1 m/s. If headlosses were approaching this 1 m/km threshold, consideration was given to increasing the diameter to the next size to allow for seasonal peaks in demand and additional capacity for future demand growth.

Note

A Supplementary Information Report similar to that requested by the reporter last year will be available for use at the annual reporter review meeting. This report will highlight the relevant cost lines from the CMS system and the corresponding removal data taken from the PPRA Reports.

By taking the combined total DG2 properties removed = 143 against the total cost to remove these £388,464.91

Average Removal Cost = £2,716.53

Capital Workpackage Descriptions

Through its Water Mains Rehabilitation Programme (WMRP) Northern Ireland Water (NI Water) is replacing and rehabilitating its network assets to improve serviceability levels to its customers. As part of its regulatory undertakings, NI Water is also required to target and monitor the removal of properties at risk of receiving low pressure, which it maintains on the DG2 register.

Drummurrer Road, Coalisland and Crewbeg WPS Area

As part of the Water Mains Rehabilitation Programme (WMRP), Asset Delivery replaced approx. 2,270m of existing 3"SI water mains along Drummurrer Lane and approx. 600m of 3" PVC on Annaghboe Road with new 125mm dia. HPPE watermain in order to improve levels of serviceability to NIW customers

The work was carried out under JI226 DG2 Removal Package.

The resulting upsized replacement water main increased the pressure to 10 existing DG2 properties above the minimum 15m pressure enabling them to be removed from the DG2 register.

Crewbeg WPS area, Tandragee.

As a result of upgrade work at Crewbeg WPS, new pumps were installed which has resulted in 22no. existing DG2 properties on Corernagh Rd, Crewbeg Rd, Lisraw Rd, Crewmore Rd, Tannyoky Rd, Ballyreagh Rd and Rathconvil Rd now receiving higher pressure which has enabled them to be removed from the DG2 register.

This upgrade work was overseen by the Water Asset Performance Team and utilising the Opps. Capital Budget.

Morey Hills, Donaghadee

72 DG2 properties were identified as part of the DG2 refresh programme in Morey Avenue, Morey Drive and Morey Hills, Donaghadee. Networks modellers identified a solution by upsizing of approx. 1875m of 3" CI main on Ballyvester Road with a new 180mm HPPE pipe. A scheme was completed for this by Asset Delivery under J1518.081 Eastern Package Phase 1 of the Water Mains Rehabilitation Programme (WMRP). This has resulted in all 72 properties now receiving above standard 15m pressure at the point of connection and removal from the DG2 register.

Back Road

Following a number of complaints regarding low pressure from 2 properties on Back Road, Ballyhalbert, a new 25mm service pipe was laid by MUL utilising the Opps. Capital Budget to effectively supply these 2 properties from the inlet to Glastry SR (Trunk Conlig Ballyridley DMA) rather than from the outlet to the SR. This has enabled the pressure at these 2 properties to increase to 22m and subsequent removal from the register...

Further Work Packages to be reviewed next year 2023/24

A spreadsheet listing the Work Packages awaiting completion of PPRA reports was produced and it identifies the estimated number of DG2 properties to be removed during 2023/24 using predicted pressure from Hydraulic Modelling. The actual pressure will be confirmed by logging before formal removal of properties from the register. The table below lists the Work Packages and the predicted number of properties identified to date for removal. (This may rise or fall with further investigation or some omissions throughout the year).

Table 8

Work Package Name	No of properties to be removed
Castleward Road, Strangford	166
Kilcoole Gardens, Belfast	6
Caugh Hill, Bannagher	9
Ballywalter Road, Greyabbey	6
Derrynoose Road, Keady	6
TOTAL	193 against 145 target

Removals Pending

It should be noted that there are currently 193 properties identified for removal from the register in 2023/24 to a target of 143 in the plan following the submission of PPRA Reports.

However, the 2022/23 target was for the removal of 145 DG2 properties and the actual achieved removals was 27 over this figure. And so in reality the totals are 193 planned for next year against a 116 (143-27) target to get NIW up to the planned cumulative target for end of PC21 year 3.

These removals are subject to the completion of rehabilitation work, collation of pressure data and submission of completed reports. In previous years, more detailed work throughout the year resulted in more DG2s being delivered than planned. These reviews are ongoing.

Confidence Grade Line 4c

The confidence grade for this line has remained at B2 this year this has been achieved by EP, Asset Performance and the Reporter working together to improve the granularity of the returns and to improve the accuracy of the methodology and figures. This was done by making use of the scheme approval analysis that presents the contribution from each of the investment drivers (structural improvements, water quality, operational issues (leakage) and hydraulic drivers (DG2)).

Individual scheme outputs are provided separately to show how each calculation was carried out.

Lines 5-19 - DG3 Properties Affected by Supply Interruptions

The rules governing the recording and collation of data for the DG3 Register are explained in the DG3 Levels of Service Methodology. DG3 procedures were established and implemented by NI Water in April 2007.

Note: This commentary includes figures based on a Total Connected Properties at Year End figure of **910,098** as confirmed by C&O Services in AIR23 Table 2 Line 1.

Significant year on year changes in reported figures including an explanation of any factors that may have influenced the figures

Unplanned, Unwarned Interruptions

AIR	DG3 Properties Affected	2020/21	2021/22 (inc. Dunore)	2021/22 (exc. Dunore)	2022/23
Table 2: Line 5	More than 3 hours	24,443	35,321	21,859	15,495
Table 2: Line 6	More than 6 hours	1,834	13,581	1,007	1,322
Table 2: Line 7	More than 12 hours	0	710	0	0
Table 2: Line 8	More than 24 hours	0	12	0	0

The above table lists the outturn numbers of properties affected by unplanned, unwarned supply interruptions in the last three years and clearly shows the impact of an event in July 2021 involving a catastrophic burst on a pumped trunk main, close to Dunore Water Treatment Works which caused 13,462 properties in Antrim and surrounding areas to experience an unplanned interruption >3hrs.

During 2022/23, no bursts had a significant impact on performance although such infrequent events remain a threat. There was a summer high demand event followed by a winter freeze/thaw event but the numbers of affected properties were minimal and this was mainly due to the large amount of forward planning and a general expectancy, based on previous experience. Being able to react quickly to a worsening situation is key to minimising the impact on customers. NI Water has improved its ability to respond to such seasonal

pressures on the network by investing time and resources in preparation for a worst-case scenario.

The AIR23 outturn of **15,495** properties affected by an unplanned interruption of **more than 3 hours** was the lowest since regulatory reporting commenced. 288 unplanned interruption events were responsible, excluding those caused by a third party. Of the 288 events, only two resulted a loss of supply to more than 500 properties. The first event was due to a burst main in Mayobridge on 26th July which initially affected 786 properties. The burst was caused by a longitudinal split in a pvc distribution main and the repair involved the replacement of a 4-metre length of pipe. 352 properties experienced an interruption of more than 3 hours and a further 204 properties experienced an interruption of more than 6 hours but the impact would have been significantly greater had it not been for the mitigating actions taken. Actions included the closure of the inlet to Cleomack Service Reservoir to reduce demand and the identification of injection points for tankering. The second event was also due a burst main and involved a loss of supply to 907 properties in Wanstead DMA, Dundonald on 15th October.

The AIR23 outturn of **1,322** properties affected by an unplanned interruption of **more than 6 hours** was also the lowest since regulatory reporting commenced but marginally higher than the 2021/22 outturn of 1,007, excluding the impact of the Dunore event. 35 unplanned interruption events were responsible, excluding those caused by a third party. Of the 35 events, only two resulted in a loss of supply to more than 125 properties. The first event occurred in Mayobridge and is described above. The second event occurred in Ballyclare on 11th October and was due to a burst 10-inch cast iron trunk main on an aged part of the network. Initially, 508 properties in Killylane Glenburn DMA were affected. The rural location meant that rezoning options were limited and tankers had to be deployed. 74 properties experienced an interruption of more than 3 hours and a further 140 properties experienced an interruption of more than 6 hours. The incident was the subject of Upward Report 007.

For only the second time since 2007/08, **no** properties experienced an unplanned interruption of **more than 12 hours**. And for the fifth time in the last 7 years, **no** properties experienced an unplanned interruption of **more than 24 hours**. This year's reductions are likely to have been attributed to a combination of factors, as detailed below.

Impact of ITS Strategy on DG3 Supply Interruptions >3hrs

The implementation of initiatives under the **ITS Strategy** continues to have a positive impact on DG3 performance with fewer properties experiencing an interruption to supply and a reduction in the duration of interruption for properties that lose their supply. NI Water now uses a **Mobile Booster Trailer** at both planned and unplanned interruption events to keep customers in supply, or to greatly reduce the amount of time that customers are out of supply.

In October 2022, the Booster Trailer was used during an interruption event in Granville Industrial Estate, Dungannon to greatly reduce the time customers were out of supply while a repair was taking place. For a further example of how the Trailer has been used in the last year to reduce the impact of an unplanned interruption, please see the section of the commentary on Major Incidents – December 2022 Freeze/Thaw.

Impact of Detailed Review Process on DG3 Supply Interruptions >3hrs

Prior to April 2018, only unplanned interruptions lasting more than 6 hours were reviewed in detail because the emphasis was on ensuring the accuracy of the KPI outturns. In April

2018, a detailed review process was introduced for unplanned interruption events lasting between 3 hours and 6 hours and involving more than 500 properties.

In April 2020, the detailed review process was expanded to include unplanned interruption events with property counts between 100 and 500. In its commentary for AIR21, NI Water explained that the detailed review process had been largely responsible for the decrease in the 2020/21 >3hrs outturn and that, based on an analysis of 74 events that were known to have been reviewed, the review process was likely to have led to a 51% reduction, on average, in the property counts associated with an event and that this was consistent with a 50% reduction in the Line 5 outturn.

From April 2021, the Company has reviewed **every event** in detail that lasted more than 3 hours because the focus is now on improving the accuracy of the Average Minutes of Lost Supply per Connected Property outturn which is based on properties that experience a planned or unplanned interruption of 3 hours or more. The detailed review process has eliminated the historical issue of over-reporting and consequently, outturns have reduced.

Comparison of Burst Rate (T11: L11) and Unplanned Interruptions >3hrs (T2: L5)

Bursts

The **Table 11: Line 11** outturn number of bursts per 1,000 km of mains and **Table 2: Line 5** outturn number of properties affected by unplanned interruptions >3hrs are closely related as the majority of unplanned interruptions are caused by bursts. As such, the expectancy is for the trends for these two measures to be similar.

The following table lists the outturn numbers of bursts for the last three years, including and excluding the impact of extreme or atypical events.

Bursts	2020/21	2021/22	2022/23 inc. Freeze/ Thaw	2022/23 exc. Freeze/ Thaw
Bursts (nr)	2,400	2,498	2,513	2,312*
Difference	+163	+98	+15	-186
% Difference	+7.3%	+4.1%	+0.6%	-7.4%
Trend	Increase	Increase	No Change	Decrease

*Excludes an estimated 201 bursts associated with Freeze/Thaw in December 2022

The number of bursts in December 2022 was 394, more than twice the monthly average of 193 for the remaining eleven months and this was due to the same winter freeze/thaw event as previously described. Although it is not possible to determine which bursts would still have occurred had it not been for the freeze/thaw, the impact of the freezing weather is clear and an adjustment is therefore necessary before the figures can be compared.

The figures below are for properties affected by unplanned interruptions during the period 16th to 23rd December 2022 and are inclusive of the winter freeze/thaw event. The figures confirm that the impact on the >3hrs time band was minimal.

>0hrs	>3hrs	>6hrs	>12hrs	>24hrs
9,372	259	9	0	0

The following table lists the outturn numbers of **properties affected by unplanned interruption events >3 hours** for the last three years, including and excluding the impact of extreme or atypical events.

Unplanned	2020/21	2020/21	2021/22	2021/22	2022/23
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>3hrs	No Detailed Review	Detailed Review	inc. Dunore TM burst	exc. Dunore TM burst	
Properties (nr)	24,443	24,443	35,321	21,859**	15,495
Difference	-24,738	+344*	+10,878	-2,584	-6,364
% Difference	-50.3%	+1.4%	+44.5%	-10.6%	-29.1%
Trend	Decrease	Increase	Increase	Decrease	Decrease

*Estimated difference if a detailed review of interruption events had been undertaken in 19/20

**Excludes 13,462 properties affected by Dunore pumping main burst in July 2021

When the affected property outturns for 2021/22 and 2022/23 are compared, including an adjustment for the Dunore TM burst of July 2021, the figures confirm that 6,364 fewer properties were affected in the last year, a reduction of 29.1%. As unplanned interruption event and burst rate trends would suggest only a decrease of between 5.0% and 7.4% respectively, this uncharacteristically high reduction requires explanation.

The reduction is indicative of a decrease in the average number of properties affected by unplanned interruptions and this has been achieved through the implementation of actions aimed at mitigating the impact of bursts. NI Water's **ITS Strategy** is focussed on improving DG3 performance and reducing the Average Minutes of Lost Supply per Connected Property. As part of the work being undertaken, the Company has engaged with colleagues from across the Water Sector to develop a better understanding of the technologies and techniques employed to deal with bursts and has invested in these areas.

Examples include the use of Mobile Booster Trailers that can be taken to the location of bursts and used to maintain water pressures while repairs are being carried out, thus greatly reducing the time that customers are out of supply. The Company also continues to invest in the proactive rehabilitation of its water main infrastructure, reducing the likelihood of bursts occurring on older parts of the network and in areas where issues have arisen in the past. Key elements of the ITS Strategy are summarised below. See NI Water's AIR22 Commentary for further details.

- **Capital Investment in Watermains**
- **Post-Interruption Reviews (PIRs)**
- **Working Differently**
- **SMART Network**
- **CALM Network**

Planned and Warned Interruptions: Number of Events (All inc. WMRP)

DG3 Interruption Events	2020/21	2021/22	2022/23
More than 3 hours	112	87	54
More than 6 hours	11	9	3
More than 12 hours	0	0	0
More than 24 hours	0	0	0

The table above relates to annual numbers of planned and warned interruption events. Planned and warned interruption events are predominately associated with non-essential work i.e. work that does not need to be undertaken with any immediate degree of urgency. An example of non-essential work is mains rehabilitation.

In 2022/23, 54 planned and warned interruptions lasted more than 3 hours of which 11 (20%) were related to the Water Mains Rehabilitation Programme (WMRP). During the same

period, 3 planned and warned interruptions lasted more than 6 hours, none of which were associated with mains rehabilitation.

Planned and Warned Interruptions: Properties Affected (All inc. WMRP)

AIR	DG3 Properties Affected	2020/21	2021/22	2022/23
Table 2: Line 9	More than 3 hours	5,306	5,103	2,504
Table 2: Line 10	More than 6 hours	743	1,724	210
Table 2: Line 11	More than 12 hours	0	0	0
Table 2: Line 12	More than 24 hours	0	0	0

The table above relates to annual numbers of properties affected by planned and warned interruption events.

In 2022/23, 2,504 properties were affected by planned and warned interruptions that lasted **more than 3 hours** of which 713 (28%) were related to the Water Mains Rehabilitation Programme (WMRP). The Line 9 outturn was the lowest since regulatory reporting commenced in 2007/08. During the same period, 210 properties were affected by planned and warned interruptions that lasted **more than 6 hours** of which none were associated with mains rehabilitation. The Line 10 outturn was the lowest since regulatory reporting commenced.

Planned and Warned Interruptions: Properties and Events (WMRP only)

Time Band		2020/21	2021/22	2022/23
More than 3 hours	Properties	1,701	1,108	713
	Events	36	17	11
	Properties per Event	47	65	65
More than 6 hours	Properties	589	312	0
	Events	7	3	0
	Properties per Event	84	104	0

The table above relates to planned and warned interruptions associated only with the Water Mains Rehabilitation Programme (WMRP).

The Company's commitment to minimise disruption to its customers' water supply has resulted in the number of events and properties related to the WMRP of more than 3 hours being reduced and events of more than 6 hours being removed compared to previous years.

This improvement has been achieved, whilst overall water main distribution meterage installed under the WMRP has increased from the previous years, e.g. meterage installed in 2022/23 was 122.6km, compared to 102km in 2021/22 and 101km in 2020/21. This has been achieved due the necessity to use innovative techniques and stricter controls upon WMRP contractors to minimise disruptions to less than 3 hours.

In addition, this is the eighth year in succession, that no properties experienced a planned and warned interruption of more than 12 hours and no properties have experienced a planned and warned interruption of more than 24 hours since regulatory reporting commenced in 2007/08.

NI Water now uses a **Mobile Booster Trailer** at planned interruption events to keep customers in supply, or to greatly reduce the amount of time that customers are out of supply. In a recent example, the Booster Trailer was used during a planned trunk mains tie-

in at Crescent Link DMA, Londonderry. If not for the Trailer, a total of 3,566 properties in Crescent Link DMA, Marshalltown DMA, Rosstown DMA and Caw DMA would have been out of supply, possibly for over 6 hours overnight. The Trailer maintained pressure at approximately 5.5 bar and flow approximately 5 l/s and all customers were kept in supply during the event.

In another recent example, the Booster Trailer was used during a planned shutdown at Brockaghboy and Dunnanvenny WPS while maintenance work at the pumps was carried out. This meant that no customers were out of supply during the work. NI Water intends to use the Trailer more frequently during planned interruptions from now on.

Interruptions caused by Third Parties

AIR	DG3 Properties Affected	2020/21	2021/22	2022/23
Table 2: Line 13	More than 3 hours	2,183	1,664	816
Table 2: Line 14	More than 6 hours	300	240	343
Table 2: Line 15	More than 12 hours	0	31	112
Table 2: Line 16	More than 24 hours	0	5	112

The AIR23 outturn of 816 properties affected by an unplanned interruption of **more than 3 hours** caused by a third party was the lowest since regulatory reporting commenced in 2007/08. 7 events lasted more than 3 hours, the most significant of which occurred in Enniskillen on 4th July 2022 when a gas contractor damaged a water main and pumping sewer at the same location. 259 properties in Henry Street DMA were left without supply for more than 3 hours, 112 of which went on to experience an interruption of more than 24 hours.

The AIR23 outturn of 343 properties affected by an unplanned interruption of **more than 6 hours** caused by a third party was the seventh lowest since regulatory reporting commenced in 2007/08. 5 events lasted more than 6 hours, the most significant of which was the Enniskillen incident described above.

For only the second time since 2017/18, some properties experienced an unplanned interruption of **more than 12 hours** caused by a third party. And for only the second time since 2010/11, some properties experienced an unplanned interruption of **more than 24 hours** caused by a third party. Again, the Enniskillen incident was responsible.

Unplanned Interruptions (Overruns of Planned Interruptions)

AIR	DG3 Properties Affected	2020/21	2021/22	2022/23
Table 2: Line 17	More than 6 hours	0	89	12
Table 2: Line 18	More than 12 hours	0	0	0
Table 2: Line 19	More than 24 hours	0	0	0

The AIR23 outturn of 12 properties affected by an overrun of a planned and warned interruption that lasted **more than 6 hours** was the second lowest since regulatory reporting commenced. A single event contributed to the outturn and was related to mains rehabilitation work that ended after the planned end time on the warning card. 12 is extremely low compared to the overall number of properties that experienced a planned and warned interruption, including those that overran.

Table 2 Line 10 + Table 2 Line 17 = 210 + 12 = 222; $12 / 222 \times 100 = 5.4\%$.

This reflects the amount of planning that goes on in advance of warned events to ensure that enough time is allocated to their completion and that they do not overrun thus causing an inconvenience to customers.

For the fifth year in succession, no properties experienced an overrun of a planned and warned interruption that lasted **more than 12 hours**. And for the seventh year in succession, no properties experienced an overrun of a planned and warned interruption that lasted **more than 24 hours**.

Additional information on performance against alternative standards

NI Water has three Key Performance Indicators relating to Supply Interruptions (DG3):-

Number of properties experiencing unplanned, unwarned interruptions (expressed as a percentage of households) in excess of:

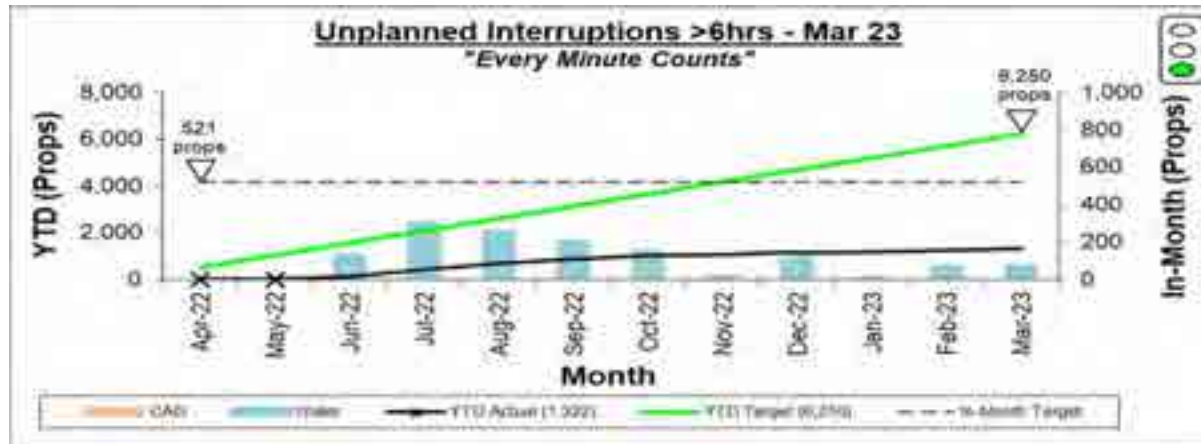
1a) 6 hours, 1b) 12 hours, 1c) 24 hours. KPIs 1a and 1c were first introduced in April 2007. The following table provides details of the outturns for the last three years together with the corresponding yearend targets.

Interrupt Category	20/21 Outturn		20/21 KPI Target		21/22 Outturn (inc. Dunore)		21/22 Outturn (exc. Dunore)		21/22 KPI Target		22/23 Outturn		22/23 KPI Target	
	(Props)	(%)	(Props)	(%)	(Props)	(%)	(Props)	(%)	(Props)	(%)	(Props)	(%)	(Props)	(%)
>6 hrs	1,834	0.205	6,773	0.759	13,581	1.504	1,007	0.112	6,331	0.701	1,322	0.145	6,250	0.687
>12 hrs	0	0.000	1,250	0.140	710	0.079	0	0.000	822	0.091	0	0.000	793	0.087
>24 hrs	0	0.000	80	0.009	12	0.001	0	0.000	80	0.009	0	0.000	80	0.009

Note: Percentage outturns in above table are based on total connected properties as follows: 892,910 (AIR21); 902,692 (AIR22); 910,098 (AIR23)

In 2022/23, NI Water achieved all three DG3 full year KPI targets. It was the Company’s best-ever DG3 performance.

The graph below shows the outturn and target profiles for numbers of properties affected by unplanned interruptions >6hrs in 2022/23.



NI Water also uses the **Average Minutes of Lost Supply per Connected Property** target to measure performance and to encourage reductions in the duration of both unplanned and planned interruptions.

In 2022/23, the Company’s outturn of **6.92** minutes was the best-ever outturn for this measure.

2020/21	2021/22	2022/23
10.67	18.00	6.92

Properties which suffered an interruption to supply where NI Water considers that customers would not have noticed the loss of service, for example because it occurred at night

Assumption: Prior to AIR20, NI Water listed only those interruptions that lasted longer than 3 hours and fell in their entirety between the hours of 12 midnight and 7am. For AIR21 and AIR22, NI Water listed only those interruptions that lasted longer than 3 hours and fell in their entirety between the hours of 11pm and 8am.

For AIR23, the Company has listed interruptions that fell either in their entirety or partly within the hours of 11pm and 8am. Those that fell only partly had the greater part of the interruption within the hours of 11pm and 8am and the lesser part lasting 3 hours or less.

Interrupt Type	Interrupt No.	Interruption Start		Supply Restored		Duration	Properties Affected		
		Date	Time	Date	Time		>0 hrs	>3 hrs	>6 hrs
Unplanned	211751	17/05/22	21:00	18/05/22	00:30	3 Hrs 30 Mins	40	40	0
Unplanned	211775	20/05/22	05:46	20/05/22	09:30	3 Hrs 44 Mins	1	1	0
Unplanned	212121	24/07/22	00:16	24/07/22	08:16	8 Hrs 0 Mins	18	18	18
			02:23		08:16	5 Hrs 53 Mins	6	6	0
Unplanned	212150	27/07/22	05:14	27/07/22	08:58	3 Hrs 44 Mins	6	6	0
Unplanned	212142	27/07/22	06:21	27/07/22	09:30	3 Hrs 9 Mins	63	63	0
Unplanned	212201	05/08/22	06:00	05/08/22	09:30	3 Hrs 30 Mins	119	119	0
Unplanned	212274	15/08/22	22:22	16/08/22	04:00	5 Hrs 38 Mins	49	49	0
Unplanned	212402	08/09/22	22:35	09/09/22	03:30	4 Hrs 55 Mins	5	5	0
Unplanned	212499	28/09/22	05:12	28/09/22	09:45	4 Hrs 33 Mins	14	14	0
			05:31		09:45	4 Hrs 14 Mins	9	9	0
Unplanned	212738	09/11/22	23:00	10/11/22	02:15	3 Hrs 15 Mins	134	134	0
Unplanned	213024	26/12/22	00:21	26/12/22	10:30	10 Hrs 9 Mins	16	16	16
			05:04		10:45	5 Hrs 41 Mins	29	29	0
Unplanned	213033	29/12/22	21:04	30/12/22	01:15	4 Hrs 11 Mins	42	42	0
Unplanned	213172	26/01/23	21:11	27/01/23	08:30	11 Hrs 19 Mins	5	5	5
Unplanned	213383	05/03/23	01:00	05/03/23	10:45	9 Hrs 45 Mins	9	9	9
			01:26		05:45	4 Hrs 19 Mins	25	25	0

Both Developer Services, Metering and Billing (DMB) and the Leakage function are responsible for interruptions to supply that are of a relatively short duration. Interruptions lasting less than 1 hour are not, as a rule, recorded by NI Water. Routine step tests are carried out at night to reduce the impact of loss of supply to customers and normally last no longer than 3 hours.

14 unplanned interruption events have been identified where customers would not have noticed the loss of service, in its entirety or in part, because it occurred at night. The total number of properties affected by the interruptions was 590 >3hrs representing 3.51% and 48 >6hrs representing 4.14% of the total number of properties that experienced an unplanned interruption in those time bands, including those caused by a third party.

$$\text{Unplanned >3hrs: } (590 / (15,495 + 1,322)) \times 100 = 3.51\%$$

$$\text{Unplanned >6hrs: } (48 / (816 + 343)) \times 100 = 4.14\%$$

In 2021/22, 8 unplanned interruption events occurred in their entirety between the hours of 11pm and 8am. 232 properties were affected by the unplanned events which represented

0.63% of the total number of properties that experienced an unplanned interruption of more than 3 hours in the year.

Number of overruns of planned and warned interruptions lasting between 3 and 6 hours

The following table provides a summary of the 7 overruns of planned and warned interruptions lasting between 3 and 6 hours in 2022/23.

	Interrupt. No.	Month	Duration	Properties Affected			Duration Of Overrun
				> 0 hrs	> 3 hrs	> 6 hrs	
1	212576	Oct-22	3 Hrs 30 Mins	19	19	0	0 Hrs 30 Mins
2	212746	Nov-22	3 Hrs 30 Mins	21	21	0	0 Hrs 30 Mins
3	212887	Dec-22	6 Hrs 45 Mins	12	12	12	1 Hr 45 Mins
4	212922	Dec-22	4 Hrs 0 Mins	10	10	0	2 Hrs 30 Mins
5	212873	Dec-22	4 Hrs 0 Mins	71	71	0	1 Hr 30 Mins
6	213205	Feb-23	3 Hrs 50 Mins	170	170	0	0 Hrs 50 Mins

The number of properties affected by the 7 overruns was:
 $19 + 21 + 12 + 10 + 71 + 170 = 303$

This number is small compared to the number of properties that experienced a planned and warned interruption of between 3 and 6 hours (2,294).

$$\text{Table 2 Line 9} - \text{Table 2 Line 10} = 2,504 - 210 = 2,294$$

NI Water reported in its AIR22 commentary that there were 7 overruns of planned and warned interruptions lasting between 3 and 6 hours. The number of properties affected by these overruns was 375.

Number of properties affected by interruptions caused by loss of electrical supply

Interrupt. No.	Date of Incident	Duration	Properties Affected					Interrupt. Type	Comments
			> 0 Hrs	> 3 Hrs	> 6 Hrs	> 12 Hrs	> 24 Hrs		
212086	18/07/22	3 Hrs 34 Mins	102	102	0	0	0	Unplanned, Unwarned	Electricity Supply Failure
212137	26/07/22	5 Hrs 43 Mins	148	148	0	0	0	Unplanned, Unwarned	Electricity Supply Failure
213406	08/03/23	5 Hrs 30 Mins	6	6	0	0	0	Planned & Warned	Power Outage
213472	23/03/23	4 Hrs 46 Mins	5	5	0	0	0	Unplanned, Unwarned	Electricity Supply Failure
		7 Hrs 7 Mins	20	20	20	0	0		
		9 Hrs 47 Mins	11	11	11	0	0		

The table above provides a summary of the 3 records in 2022/23 relating to unplanned, unwarned water supply interruptions caused by electricity supply failures lasting more than 3 hours. Also included is 1 record relating to a power outage which resulted in a planned and warned water supply interruption with a duration of more than 3 hours.

No properties experienced an interruption of more than 12 hours as a result of any of the incidents.

The most significant event in terms of number of affected properties occurred on 26th July 2022 when 148 properties in Snowy Glen DMA lost their supply for 5 hours 43 mins as a result of an electricity supply failure.

The most significant event in terms of duration of interruption occurred on 23rd March 2023 when an electricity supply failure caused 36 properties in Dromara High Level DMA to lose their supply. 11 properties lost their supply for 9 hours 47 minutes and a further 20 properties lost their supply for 7 hours 7 minutes. The remaining 5 properties experienced an interruption of 4 hours 46 minutes.

Percentage impact of interruptions caused by loss of electrical supply on annual outturns

	>3 Hrs	>6 Hrs	>12 Hrs	>24 Hrs
Number of Properties Affected by Unplanned, Unwarned Water Supply Interruptions caused by Electricity Supply Failures	286	31	0	0
Number of Properties Affected by Unplanned, Unwarned Interruptions	15,495	1,322	0	0
Percentage Impact	1.85%	2.34%	0.00%	0.00%

In 2022/23, the >3hrs and >6hrs outturns were impacted by electricity supply failures, accounting for 1.85% and 2.34% of the total numbers of properties affected by unplanned interruptions. In 2021/22, only the >3hrs target was impacted and the percentage was 0.71%.

Percentage impact of interruptions caused by loss of electrical supply on target compliance

	>6 Hrs	>12 Hrs	>24 Hrs
Percentage Connected Properties Affected by Electricity Supply Failures	0.003%	0.000%	0.000%
KPI Target	0.687%	0.087%	0.009%
Percentage Annual Target	0.50%	0.00%	0.00%

In 2022/23, electricity supply failures accounted for only 0.50% of the >6hrs KPI target whilst in 2021/22, the impact on target compliance was negligible.

Major incidents during the report year that NI Water believes adversely affected its DG3 performance

The following table provides a summary of the **14** supply interruption incidents during 2022/23 that lasted more than 3 hours and were mentioned in the Company's Upward Reports. *For full details of these incidents, please refer to the Upward Reports.*

Ref	Interrupt No.	Date	Description of Incident	Duration	>0hrs	>3hrs	>6hrs	>12hrs	>24hrs	Category
001	Event 269871; DG3 211921	17/06/2022	Burst 200 mm trunk main, Altinure Road, Feeny – Fincairn & Claudy DMAs	10 Hrs 16 Mins	1,546	144	123	0	0	3
002	Event 270026; DG3 212024	04/07/2022	Burst main caused by gas contractor, Sligo Road, Enniskillen	69 Hrs 2 Mins	765	259	112	112	112	3
003	Event 270413; DG3 212278	16/08/2022	Burst on 12" West Circular Road trunk main	4 Hrs 42 Mins	1,316	1	0	0	0	3
004	Event 270479; DG3 212312	23/08/2022	Burst on 400 mm trunk main from Foffany WTW to Newry	11 Hrs 22 Mins	1,126	471	92	0	0	3
005	Event 270521; DG3 212339	26/08/2022	Burst on Killyclogher Doogary trunk main, Omagh	9 Hrs 7 Mins	663	206	125	0	0	3
006	Event 270664; DG3 212402	08/09/2022	Burst on main from Lough Fea WTW to Ballybriest SR / Comms failure	4 Hrs 55 Mins	5	5	0	0	0	Precautionary
007	Event 270975; DG3 212574	11/10/2022	Burst on trunk main from Killylane WTW to Glenburn	9 Hrs 55 Mins	508	214	140	0	0	3
008	Event 271222; DG3 212708	03/11/2022	Burst main, Craigstown DMA	8 Hrs 25 Mins	233	112	5	0	0	3
009	Various	16/12/2022 to 23/12/2022	December 2022 Freeze/Thaw <i>Note: Property counts are for all unplanned interruptions from 16/12/2022 to 23/12/2022 since it is impossible to determine which bursts would only have occurred because of the freeze/thaw.</i>	11 days of freeze followed by 6 days of thaw	9,372	259	9	0	0	2

Ref	Interrupt No.	Date	Description of Incident	Duration	>0hrs	>3hrs	>6hrs	>12hrs	>24hrs	Category
010	Event 271623; DG3 212939	13/12/2022	Burst on 14" Ballydougan Warngstown trunk main	7 Hrs 32 Mins	692	232	67	0	0	3
011	Event 271876; DG3 213024	26/12/2022	Burst pumping main to Ballybracken Service Reservoir, Drumadarragh Road, Doagh	10 Hrs 26 Mins	169	65	27	0	0	3
012	Event 272476; DG3 213362	01/03/2023	Burst on outlet of Drumaroad Chapelhill Service Reservoir	5 Hrs 14 Mins	833	118	0	0	0	3
013	Event 272612; DG3 213438	15/03/2023	Loss of supply at Aughnagon Service Reservoir	4 Hrs 35 Mins	2,580	84	0	0	0	3
014	Event 272692; DG3 213468	23/03/2023	Burst on 12" trunk main, Newtownards Road, Belfast	5 Hrs 36 Mins	265	1	0	0	0	3

In the years prior to 2017/18, NI Water assumed a monthly target allowance of one seventeenth of the full year target from April to October and a monthly target allowance of two seventeenths of the full year target from November to March. The allowance was doubled from November to March to account for freeze-thaw conditions and an associated rise in the numbers of bursts.

Following a review of historical annual performance profiles, the decision was taken in 2017/18 to opt for a straight-line target profile i.e. the same monthly target allowance every month. The target profile remained straight for 2022/23.

The 2022/23 KPI targets are listed below as percentages and numbers of total connected properties, together with the corresponding monthly target allowances.

KPI	2022/23 Target		Monthly Target Allowance Apr to Mar	
	%	Properties	%	Properties
>6hrs	0.687	6,250	0.057	521
>12hrs	0.087	793	0.007	66
>24hrs	0.009	80	0.001	7

In previous years, the unplanned interruption events that had the greatest negative impact on performance were determined by comparing the monthly actuals with the three KPI target profiles and identifying instances where a target was missed. In 2022/23, there were no such instances so instead, the Company will discuss the five most significant events of the year.

Major Incidents

Burst on 200mm Caught Hill – Ardinarive Trunk B main, Altinure Road, Feeny (Fincairn & Claudy DMAs)

(Ref: IMS Event ID 269871; DG3 ID 211921)

	>0hrs	>3hrs	>6hrs	>12hrs	>24hrs
Properties Affected	1,546	144	123	0	0

On Friday 17th June 2022, a burst occurred on a 200 mm PVC trunk main at Altinure Road, Feeny affecting properties in Fincairn and Claudy DMAs. Following rezoning, the only properties left without supply were those served by Kilgort Water Booster Station. The incident was the subject of **Upward Report 001**.

This event was note-worthy because of the maximum duration of interruption (*10 Hrs 16 Mins*) and the number of properties affected for more than 6 hours (*123 nr*). The impact of the incident in terms of percentages of connected properties affected was 0.014% >6hrs.

Burst main, Sligo Road, Enniskillen (Henry Street DMA)

(Ref: IMS Event ID 270026; DG3 ID 212024)

	>0hrs	>3hrs	>6hrs	>12hrs	>24hrs
Properties Affected	765	259	112	112	112

On Monday 4th July 2022, a contractor working for a gas company damaged a water main and pumping sewer at Sligo Road, Enniskillen. The water main supplies properties in Henry Street DMA. The incident was the subject of **Upward Report 002**.

This event was note-worthy because of the maximum duration of interruption (*69 Hrs 2 Mins*) and the large number of properties affected for more than 24 hours (*112 nr*). The impact of this incident in terms of percentages of connected properties affected was 0.012% >6hrs, >12hrs and >24hrs.

Burst on 400 mm trunk main from Foffany WTW to Newry

(Ref: IMS Event ID 270479; DG3 ID 212312)

	>0hrs	>3hrs	>6hrs	>12hrs	>24hrs
Properties Affected	1,126	471	92	0	0

On Tuesday 23rd August 2022, a burst occurred on the 400mm trunk main from Foffany Water Treatment Works to Newry. Rezoning options were limited. The burst was located in a field at Rostrevor Road, Hilltown. The main supplies Cleomack and Aughnagon Service Reservoirs. The incident was the subject of **Upward Report 004**.

This event was note-worthy because of the maximum duration of interruption (*11 Hrs 22 Mins*) and the number of properties affected for more than 6 hours (*92 nr*). The impact of this incident in terms of percentages of connected properties affected was 0.010% >6hrs.

Burst on Killyclogher Doogary Trunk Main, Omagh (Blackfort Bridge & Carnalea Bridge DMAs)

(Ref: IMS Event ID 270521; DG3 ID 212339)

	>0hrs	>3hrs	>6hrs	>12hrs	>24hrs
Properties Affected	663	206	125	0	0

On Saturday 26th August 2022, a burst occurred on the Killyclogher Doogary trunk main, Omagh affecting properties in Blackfort Bridge and Carnalea Bridge DMAs. The trunk main also supplies Lisnagardy and Dungoran Service Reservoirs. The burst was located on Seskinore Road, Fintona in an overgrown woodland area. Dungoran SR was the more seriously depleted of the two and as the storage level began to drop, tankers were mobilised to keep the reservoir in operation. The incident was the subject of **Upward Report 005**.

This event was note-worthy because of the maximum duration of interruption (*9 Hrs 7 Mins*) and the large number of properties affected for more than 6 hours (*125 nr*). The impact of this incident in terms of percentages of connected properties affected was 0.014% >6hrs.

Burst on 10" trunk main from Killylane WTW to Glenburn

(Ref: IMS Event ID 270975; DG3 ID 212574)

	>0hrs	>3hrs	>6hrs	>12hrs	>24hrs
Properties Affected	508	214	140	0	0

On Tuesday 11th October 2022, a burst occurred on the 10" SI trunk main from Killylane Water Treatment Works to Glenburn. The main supplies Donegore and Ballybracken Service Reservoirs and as no rezoning options were available, the decision was taken to tanker into Ballybracken SR whilst Rashee pumps were activated to maintain levels at Killylane WTW. The burst was located at Tildrag Road South, Ballyclare. The incident was the subject of **Upward Report 007**.

This event was note-worthy because of the maximum duration of interruption (*9 Hrs 55 Mins*) and the number of properties affected for more than 6 hours (*140 nr*). The impact of this incident in terms of percentages of connected properties affected was 0.015% >6hrs.

Note: As always, NI Water has fully assessed the issues that led to each of the above events as well as the ways in which the events were managed from an operational perspective and has developed a series of actions aimed at mitigating the impact of similar events.

December 2022 Freeze/Thaw – Upward Report 009

Weather

Very cold weather caused widespread disruption to water supplies across Northern Ireland for a period of 11-days from 6th to 17th December 2022. Some inland parts of Northern Ireland experienced sub-zero day-time temperatures around the 12th and 13th December, mainly across southern and western counties. A Category-2 incident was declared by NI Water and Incident Teams were in place from Friday 16th December to manage an anticipated surge in water demand arising from the onset of thaw conditions. On Sunday 18th December, the response was escalated to Category-1 and incident teams were stood down on Friday 23rd December.

WTWs

Throughout the freeze/thaw event, NI Water monitored telemetry alarms at critical service reservoirs and at water treatment works' clear water basins. Storage at a number of downstream service reservoirs became depleted and some water treatment works operated at peak capacity to compensate for increasing demand.

Bursts

Demand-surge management involves a substantial amount of rezoning of networks to redistribute available supplies. In general, when network reconfigurations are undertaken on a wide scale, the number of burst mains can be expected to increase because of increased flows, reversing of flows in pipes, fluctuating pressures and ground movements as a result of thawing ground.

In comparison with the normal average workload of 10 bursts per day, the average daily burst rate, between 16th and 24th December 2022, of 60 bursts per day (including private property bursts), was significant. NI Water Staff and Contractors worked under difficult conditions on a range of incident activities including leak detection, burst location, watermain repair, alternative water supplies and provision of advice and information to Customers, to ensure that supplies were maintained to the vast majority of Customers.

Interruptions to Supply

Analysis of DG3 reports from the Incident Management System (IMS) for the period from 16th to 24th December 2022 indicate that the following supply interruptions occurred.

Burst Main/Main Repair (Unplanned)

	Number of Events (IMS)			Number of Properties (IMS)		
	>0hrs	>3hrs	>6hrs	>0hrs	>3hrs	>6hrs
16/12/22	3	0	0	107	0	0
17/12/22	2	0	0	135	0	0
18/12/22	11	3	2	2,051	114	9
19/12/22	11	3	0	1,383	138	0
20/12/22	13	0	0	2,702	0	0
21/12/22	3	0	0	100	0	0
22/12/22	1	0	0	47	0	0
23/12/22	2	1	0	352	5	0
24/12/22	4	1	0	232	19	0
TOTAL	50	8	2	7,109	276	9

Freeze/Thaw inc. Reservoir Issues (Unplanned)

	Number of Events (IMS)			Number of Properties (IMS)		
	>0hrs	>3hrs	>6hrs	>0hrs	>3hrs	>6hrs
18/12/22	2	0	0	1,368	0	0
19/12/22	2	1	0	843	2	0
TOTAL	4	1	0	2,211	2	0

Pump Equipment Failure (Unplanned)

	Number of Events (IMS)			Number of Properties (IMS)		
	>0hrs	>3hrs	>6hrs	>0hrs	>3hrs	>6hrs
18/12/22	1	0	0	238	0	0
TOTAL	1	0	0	238	0	0

All Causes of Unplanned Interruption

	Number of Events (IMS)			Number of Properties (IMS)		
	>0hrs	>3hrs	>6hrs	>0hrs	>3hrs	>6hrs
TOTAL	55	9	2	9,558	278	9

Note: Figures are for all unplanned interruptions from 16/12/22 to 24/12/22 since it is impossible to determine which interruptions would only have occurred because of the freeze/thaw.

The figures confirm that, although there were instances when the volume of water entering the distribution network was not sufficient to meet demand, the impact was not significant in terms of both number of events and number of properties affected and that the action taken to mitigate the severity of the situation was successful.

Service Reservoirs

Service reservoirs were closely monitored to confirm available storage and to target the areas of greatest need for operational mitigation actions, which included: maximising treatment-works production, network rezoning, expedited burst repairs and the escalation of a major tankering operation for service reservoirs at risk of further depletion and recovery failure.

No service reservoirs lost supply during the 2022 high-demand event.

Alternative Water Supply (AWS)

An Alternative Water Supply (AWS) Management Team worked remotely as a distinct workstream along with the Silver Incident Team to coordinate alternative water supply provisions in the field.

Asset-to-Asset Tankering

Some service reservoir levels were trending downwards and were monitored for appropriate mitigation measures. They were slow to recover due to hydraulic constraints in the network and depleted headroom in upstream water treatment works. NI Water tankers, augmented by local contractor-hired tankers, were deployed in a major tankering operation to sustain customer supplies from these service reservoirs. This was a critical asset-to-asset tankering operation for maintaining supplies for up to 24,209 properties.

Mobile Booster Trailer

The Mobile Booster Trailer was used in December 2022 during the Freeze/Thaw major incident. The level of Radergan South SR had dropped by 2.4m in under 8 hours, due to bursts on the inlet and outlet of Sixmilecross SR and an increased outlet flow from Radergan. Tankering directly into Radergan South SR was not possible, due to an impassable laneway and poor weather conditions. The Booster Trailer was deployed from Ballymena, with tankers arranged to meet it on site. The closest accessible fire hydrant to the SR was chosen that had space for the Trailer to be set up. The pressure was set to match the gravity outlet pressure and this fed into distribution, allowing the SR level to recover over the next 24 hours. The Trailer ran for approximately 30 hours and it took approximately 30 minutes to offload each tanker into the distribution network. This allowed Radergan, Sixmilecross and Formass SRs to recover.

Justification of the assigned confidence grades including an explanation for any changes in confidence grades from previous years

The AIR09 Reporter recommended the use of consistent confidence grades across all lines relating to DG3. On 4th July 2014, NI Water first introduced the Incident Management System (*IMS*) as a replacement for the Operations Management Information System (*OMIS*) to capture data relating to supply interruptions. In 2015/16, the Company increased its DG3 confidence grade from 'B3' to 'A3' because it was the first full year in which IMS had been used instead of OMIS.

IMS has now been used to capture eight complete years' worth of data and again, the Company has assigned a confidence grade of 'A3' across all lines relating to DG3. The Company continues to develop the system on an annual basis by seeking suggestions from its key users and making the necessary modifications to improve the usability and functionality of the system as well as ensuring that growing requirements are met across all areas of the business.

Justification of Reliability Band 'A'

IMS is regarded as a better system than OMIS and has the following benefits:

- Improved customer response times
- Improved consistency of methodology across all work streams
- Improved accuracy of information through:
 - the recording of start times by Work Controllers/Telemetry Operators
 - the recording of individual start and restoration times for each property as opposed to each event
 - the recording of times to the nearest minute

- Improved utilisation of other key systems e.g. the GIS as a source of address information
- Improved auditability of information through query, change and approval status tracking
- Better management of approval chains through the automatic generation of e-mailed reminders
- Improved report generation
- Improved accessibility and sharing of information across the business
- Enhanced effectiveness of the DG3 Register through the capture of additional information such as pipe material and diameter and the GIS co-ordinates of bursts

IMS is working exactly as it should by ensuring the capture of a greater number of interruption events and a greater number of affected properties associated with those events. All interruption events are fully documented to a consistent standard. Every interruption record includes the category, cause, key dates and times, address details, and property counts necessary to meet the regulatory reporting requirements of a DG3 Register. The cause of interruptions is identified by experienced field staff or contractors.

Justification of Accuracy Band '3' – Rapid Data and IMS data Comparison

'No Water' Complaints

The following table lists the outturn numbers of 'no water' complaints derived from Rapid data for the last three years.

'No Water' Complaints	2020/21	2021/22 inc. Dunore TM burst	2021/22 exc. Dunore TM burst	2022/23 inc. Freeze/ Thaw	2022/23 exc. Freeze/ Thaw
Complaints (nr)	19,566	20,059	18,919*	20,103	18,784**
Difference	+2,205	+493	-647	1,184	-135
% Difference	+12.7%	+2.5%	-3.3%	+6.3%	-0.7%
Trend	Increase	Increase	Decrease	Increase	No Change

*Excludes 1,140 complaints associated with Dunore pumping main burst in July 2021

**Excludes an estimated 1,319 complaints associated with Freeze/Thaw in December 2022

When the 'no water' complaint outturns for 2021/22 and 2022/23 are compared, including an adjustment for the Dunore TM burst in July 2021, the figures confirm that 1,184 additional complaints were received in the last year. The above average number of complaints can be attributed to a winter freeze/thaw event in December 2022. A major incident was declared on 16th December before the onset of the thaw and the incident ran until 23rd December.

During this time, there was a notable rise in the number of 'no water' complaints as customers experienced the impact of an increased number of bursts associated with the freezing weather. 2,884 'no water' complaints were received in December, 1,319 more than the monthly average for the remaining 11 months. Had it not been for the freeze/thaw and Dunore, annual numbers would have been very similar.

Unplanned Interruption Events >0 Hours

The following table lists the outturn numbers of unplanned interruption events derived from IMS data for the last three years.

Unplanned Events >0hrs	2020/21	2021/22	2022/23
Events (nr)	1,721	1,626	1,544
Difference	109	-95	-82
% Difference	+6.8%	-5.5%	-5.0%
Trend	Increase	Decrease	Decrease

The annual numbers of 'no water' complaints and unplanned interruption events recorded on the Company's Incident Management System (IMS) should display similar trends since the two measures are closely related. However, the table above confirms a 5.0% decrease in unplanned interruptions compared to a 0.7% decrease in complaints. Although not a huge difference, this shift still requires explanation.

A 5% decrease in the outturn number of unplanned interruption events >0hrs shows that some interruptions can now be prevented through a change in work practices and the way in which bursts and other, less common causes of interruption are managed. New initiatives introduced under NI Water's **ITS Strategy** are helping to reduce the overall number of interruptions and when an interruption is still inevitable, for example, when bursts occur in single supply zones with rezoning limitations, these initiatives are helping to reduce the average duration of interruption and average number of affected properties per event. As a result of these changes, DG3 performance is improving and customers are benefitting by experiencing less inconvenience and disruption to their supply.

The average number of 'no water' complaints received per unplanned interruption event continues to be a good indication of the completeness of the Company's data and whether or not, the details of all such events are being captured by the Company's systems.

	2020/21	2021/22	2022/23
Complaints per Event	11.4	11.6	12.2

Over 1,000 'no water' complaints were associated with the Dunore Trunk Main burst event in July 2021. And over 1,000 'no water' complaints were associated with the Freeze/Thaw event in December 2021. With those events excluded from the analysis, the statistics show that in the last three years, the outturns were between 11.4 and 12.2. On this basis, the conclusion is that the accuracy of the data remains consistent and inclusive of all interruption events. The number of complaints in 2020/21 may have been higher and hence, the number of complaints per event lower, due to people working from home during the Covid-19 pandemic.

Audit Checks

NI Water carries out a number of audit checks, aimed at ensuring that the data in its Annual Information Return is both reliable and accurate and that the confidence grade is justified. The audit checks ensure that affected properties have been reported under the correct category of interruption and that reporting is in accordance with the regulatory guidance and definitions.

During the year, the Water function within the Customer & Operations Directorate generated a total of 337 records of interruption events lasting more than 3 hours. All records were checked for accuracy and completeness by the Field Managers as part of the approval process. Following the extraction of data to spreadsheets, checks were carried out by C&O Services to ensure that the data remained consistent with IMS and that no records had been inadvertently deleted or duplicated during migration between worksheets.

During the year, Capital Asset Delivery generated a total of 20 records of interruption events lasting more than 3 hours. A random sample of 17 records was checked against the corresponding Interruption Record Sheets to ensure that the details had been accurately transcribed. This represents 85% of records.

Throughout 2022/23, the Company has continued to review its records of 'no water' complaints when determining the details of supply interruptions. And the Company has carried out checks to ensure consistency between IMS and the Upward Reporting process relating to unplanned interruption events lasting more than 3 hours.

The Company also continues to monitor the warning notification process followed by its contractors for planned and warned interruptions and has carried out sample checks to confirm that customers were provided with at least 48 hours warning in advance of planned and warned interruptions to supply.

Line 20 - Population (winter)

Note: All calculations relating to Line 20 were originally performed with the aid of a spreadsheet. For the purposes of the commentary, figures have been rounded and may give rise to rounding errors if used.

Estimation of Non-Resident Visitor Nights in 2022

The AIR23 methodology involves three separate applications of the monthly occupancy figures for hotels and small service accommodation (*formerly known as guest houses/B&Bs*). The first involves an application of the monthly occupancy figures for the period January 2019 to December 2019 (*see table below*) along with the number of non-resident visitor nights for the same period (*still the last available published figure*) in order to determine the relationship between the two datasets. Please refer to the following NISRA publications:

- *Northern Ireland Monthly Hotel Occupancy – Table 3 (Publication Date: 06/04/23)*
- *Northern Ireland Monthly Small Service Accommodation Occupancy – Table 2 (Publication Date: 06/04/23)*

MONTH	HOTEL BED-SPACES SOLD	SMALL SERVICE ACCOMMODATION BED-SPACES SOLD	TOTAL BED-SPACES SOLD
Jan-19	232,216	31,508	263,724
Feb-19	274,402	38,899	313,301
Mar-19	308,143	45,317	353,460
Apr-19	291,591	66,338	357,929
May-19	353,957	75,838	429,795
Jun-19	381,005	96,859	477,865
Jul-19	408,819	113,966	522,786
Aug-19	444,286	124,899	569,185
Sep-19	344,568	81,511	426,079
Oct-19	328,592	66,397	394,989
Nov-19	292,004	50,024	342,028
Dec-19	292,224	34,837	327,061
Total	3,951,808	826,394	4,778,202

Total bed-spaces sold (Jan 19 to Dec 19) = 4,778,202

Ref: Country of Residence worksheet of the NISRA publication 'Northern Ireland Tourism Statistics Microdata (January 2011 – December 2019)' dated 22/09/2020.

- 'Estimated Overnight Trips taken in Northern Ireland by Country of Residence, Q1 2011-Q4 2019'

Non-resident visitor nights (Jan 19 to Dec 19) =
5,710,332 (GB visitors) + 1,858,509 (RoI visitors) + 4,246,082 (outside UK & RoI visitors) =
11,814,924

$11,814,924 / 4,778,202 = 2.473$

Based on data for the period January 19 to December 19, the number of non-resident visitor nights was found to be 2.473 times that of the number of bed-spaces sold for hotels and small service accommodation.

The second application of the monthly occupancy figures for hotels and small service accommodation involves an application of the data for the period January 2022 to December 2022 (see table below) and the relationship determined above in order to estimate the number of non-resident visitor nights for the same period. Please refer to the following NISRA publications:

- Northern Ireland Monthly Hotel Occupancy – Table 3 (Publication Date: 06/04/23)
- Northern Ireland Monthly Small Service Accommodation Occupancy – Table 2 (Publication Date: 06/04/23)

MONTH	HOTEL BED-SPACES SOLD	SMALL SERVICE ACCOMMODATION BED-SPACES SOLD	TOTAL BED-SPACES SOLD	PERCENTAGE OF BED-SPACES SOLD IN 2020
Jan-22	182,416	25,552	207,968	4.19%
Feb-22	251,268	35,385	286,653	5.77%
Mar-22	304,199	51,721	355,920	7.17%
Apr-22	354,694	77,138	431,832	8.70%
May-22	377,395	93,799	471,194	9.49%
Jun-22	372,635	94,990	467,626	9.42%
Jul-22	424,218	129,798	554,016	11.16%
Aug-22	427,717	135,583	563,300	11.35%
Sep-22	352,346	91,685	444,030	8.94%
Oct-22	347,883	94,357	442,240	8.91%
Nov-22	309,388	72,208	381,596	7.69%
Dec-22	307,620	50,175	357,795	7.21%
Total	4,011,779	952,391	4,964,170	100.00%

Total bed-spaces sold (Jan 22 to Dec 22) = 4,964,170

Estimated non-resident visitor nights (Jan 22 to Dec 22) =

$4,964,170 \times 2.473 = 12,274,761$

Having estimated the number of non-resident visitor nights in 2022, all components of the Winter Population calculation are now available and the remainder of the methodology is similar to previous years.

The third and final application of the monthly occupancy figures for hotels and small service accommodation involves an application of the data for the period January 2022 to December 2022 (see *table above*) in order to calculate the percentages of bed-spaces sold per month in 2022 and hence, the percentage of bed-spaces sold during the winter months.

Assumption: The regulatory guidance for AIR Table 2 Line 20 does not define the meaning of 'winter'. In previous submissions using this methodology, the winter months were deemed to be the six months in the year with the lowest percentage bed-spaces sold. The percentage bed-spaces sold during the winter was the summation of the percentages for these six months.

Based on this assumption and the above table of percentages of bed-spaces sold per month in 2022, the percentage of bed-spaces sold during the winter was:

$$4.19 + 5.77 + 7.17 + 8.91 + 7.69 + 7.21 = 40.94\%$$

Assumption: There is a direct relationship between bed-spaces sold and non-resident visitor nights.

Estimated non-resident winter visitor nights in 2022 =

$$(12,274,761 / 100) \times 40.94 = 5,024,893$$

According to AIR23: Table 7: Line 17, the baseline resident population was $1,912.09 \times 10^3$.

Using the baseline resident population and the estimated non-resident winter visitor nights above, the winter population was estimated as follows:

Estimated average non-resident winter visitors per night =

$$5,024,893 / (31 + 28 + 31 + 31 + 30 + 31) = 27,609$$

$$\text{Population (winter)} = 1,912,090 + 27,609 = \mathbf{1,939,699}.$$

Changes in Methodology

Background

The Winter Population is the resident population (water) plus the average non-resident population on any given day during the six winter months of the year. The methodology for calculating the average non-resident population relies heavily on the ability to source a figure from available tourism statistics for the number of **non-resident visitor nights**. In the past, this figure has been available for either the most recent calendar year (*as in the case of AIR17*) or only part of the most recent calendar year (*as in the cases of AIR18, AIR19 and AIR20*), but not the financial year in question.

These limitations have caused NI Water to base its reporting of the Winter Population on a calendar year and to estimate the number of non-resident visitor nights in the calendar year when the figure has not been readily available. Estimates are based on the assumption that there is a direct relationship between the number of non-resident visitor nights and the occupancy figures for hotels and small service accommodation.

AIR23 Methodology

Continuing Impact of Covid-19 Pandemic on Northern Ireland Tourism Statistics

Tourism data is derived from a variety of sources and the COVID-19 pandemic has had a significant effect. Due to data collection issues and the quality and quantity of some data, NISRA has suspended National Statistics status for tourism data until further notice. As such, the latest full National Statistics annual accredited publication is still the 2019 edition. National Statistics status guarantees the highest standards of trustworthiness, quality and public value.

In view of the circumstances highlighted above, NI Water has continued to use the last available National Statistics accredited figure for non-resident visitor nights i.e. the figure for the 12-month period from January to December 2019 and has estimated the annual number of non-resident visitor nights in 2022.

Impact of Change in AIR23 Methodology on Reported Outturn

The change in methodology described above is not believed to have had a significant impact on the reported outturn. This can be illustrated by examining the impact that an estimate has on the calculation for Jul 18 to Jun 19 when the estimate is based on the established relationship between non-resident visitor nights and bed-spaces sold.

Ref: Tables 1.3 and 1.2 of the NISRA publications '*Northern Ireland Tourism Statistics Tables (2011 – 2020)*' dated 18/02/2021.

Total bed-spaces sold (Jul 18 to Jun 19) = 4,645,321

Estimated non-resident visitor nights (Jul 18 to Jun 19) =
 $4,645,321 \times 2.473 = 11,486,354$

Ref: Country of Residence worksheet of the NISRA publication '*Northern Ireland Tourism Statistics Microdata (January 2011 – December 2019)*' dated 22/09/2020.

- '*Estimated Overnight Trips taken in Northern Ireland by Country of Residence, Q1 2011-Q4 2019*'

Actual non-resident visitor nights (Jul 18 to Jun 19) = 12,098,471

Difference between actual and estimate =
 $12,098,471 - 11,486,354 = 612,116$

Percentage difference = $612,116 / 12,098,471 \times 100 = 5\%$

As the difference between the actual and estimate is within the tolerance of any previously assigned confidence grading for this measure i.e. between 1% and 5%, this is deemed to be a suitable method for estimating the number of non-resident visitor nights.

Significant year on year changes in reported figures including an explanation of any factors that may have influenced the figures

AIR21	Confidence Grade	AIR22	Confidence Grade	AIR23	Confidence Grade
1,905.05 x 10 ³	C2	1,910.42 x 10 ³	C2	1,939.70 x 10 ³	C2

Update on AIR19 Reporter Recommendation

The AIR19 Reporter recommended that in the absence of a published figure for the number of non-resident visitor nights for the year in question, NI Water was to recalculate the Winter Population when a published figure became available and include an update on the impact of any change in the commentary for the following year.

Unfortunately, it has not been possible to recalculate the AIR22 outturn ahead of AIR23 as the most recently published figure for the number of non-resident visitor nights is **still** the figure for 2019 which was used to recalculate the AIR20 outturn and which was used last year and again this year to estimate the AIR22 and AIR23 outturns. NI Water will recalculate the AIR21 and AIR22 outturns when the numbers of non-resident visitor nights in 2020 and 2021 are confirmed by NISRA.

Last year, the Company reported a Table 2 Line 20 outturn of $1,910.42 \times 10^3$. Based on the AIR23 outturn of $1,939.70 \times 10^3$, the estimated winter population has increased by 29.28×10^3 (1.53%). This increase can be attributed to changes in the component figures that make up this figure.

The estimated number of hotel bed-spaces sold in 2022 (4,011,779) was higher than the estimate for 2021 (2,515,418). The estimated number of small service accommodation bed-spaces sold in 2022 (952,391) was higher than the estimate for 2021 (527,011). And the estimated number of non-resident visitor nights in 2022 (12,274,761) was higher than the estimate for 2021 (7,523,927).

Factors impacting on tourism and winter population trends

After several years when the hospitality sector was heavily impacted by restrictions imposed by the government in dealing with the Covid-19 pandemic, there was clear evidence of tourism figures beginning to return to normal in 2022. In fact, a record number of trips were made by people from the Republic of Ireland to Northern Ireland in the first 6 months of 2022, exceeding numbers for 2019 which, at the time, was a record-breaking year.

Significant levels of concern prevail regarding the impact of rising energy costs alongside other operating costs, and the continued adverse impact of the reduction in consumers' disposable income. The challenging economic environment, aggravated by the war in Ukraine, continues to be the main factor weighing on the recovery of tourism whilst hotels, restaurants and airports will struggle to cope with labour shortages, wage demands, and high food and energy prices. All factors considered; tourism is not expected to return to prepandemic levels until around the end of 2023.

Confidence Grade

Population (winter) is an estimate based on several sources of information:

1. The NISRA publications '*Northern Ireland Monthly Hotel Occupancy*' and '*Northern Ireland Monthly Small Service Accommodation Occupancy*' provide only an estimate of the monthly numbers of bed-spaces sold, based on the extrapolation of data for a representative sample group of establishments.
2. The NISRA publication '*Northern Ireland Tourism Statistics Microdata (January 2011 – December 2019)*' provides only an estimate of the quarterly numbers of non-resident visitor nights, based on sample surveys. The estimate therefore has an associated degree of sampling error, determined both by the sample design and by the sample size. Sample surveys include the Northern Ireland Passenger Survey (NIPS) conducted by the Northern Ireland Statistics and Research Agency (NISRA), the Survey of Overseas

Travellers (SOT) conducted on behalf of Fáilte Ireland and the Household Travel Survey (HTS) conducted by Central Statistics Office (CSO).

NI Water has assigned a confidence grade of **C2** to account for known deficiencies in the reliability and accuracy of the reported figure. Although there have been changes in the methodology, data confidence is still believed to be comparable to previous years.

The “2” has been assigned because even if all visits occurred in the winter, the difference in the calculated winter population would be 39,834 (+2.05%). (*see calculation below*)

$12,274,761 / (31 + 28 + 31 + 31 + 30 + 31) = 67,444$ non-resident visitors

$1,912,090 + 67,444 = 1,979,534$ residents + non-resident visitors

$1,979,534 - 1,939,699 = 39,834$

$(39,834 / 1,939,699) \times 100 = 2.05\%$

Unlike some areas of GB where the seasonal influx of tourists and associated variation in population is considerable, the annual number of non-resident visitors to Northern Ireland is normally so small in comparison to the number of resident visitors that the impact of the inclusion of this figure and its correct apportionment between summer and winter has very little impact on any calculations and is always, well within the tolerance of any accuracy band assigned by NI Water.

At the time of reporting on AIR23, the most recent non-resident visitor nights figure available was for 2019 and a figure for 2022 had to be estimated. When reporting on AIR24, NI Water will recalculate the AIR23 outturn using the published figure for 2022.

Lines 21-23 DG4 Restrictions on use of water

Hosepipe restrictions are defined as applying to those area(s) where legal notification has been published restricting the use of hand held hosepipes. This will normally be via notifications in the press that the use of hosepipes is banned.

Drought Orders: The population affected by Drought Orders shall include all areas where Drought Orders under Part V Chapter 1 and Schedule 5 of the Water and Sewerage Services (NI) Order 2006 have been approved by the Minister and implemented by the company.

Sprinkler/unattended hosepipe restrictions are defined as applying to those area(s) where legal notification has been published restricting the use of sprinklers/unattended hosepipes. This will normally be via notifications in the press that the use of sprinklers/unattended hosepipes is banned.

Outturns and Confidence Grades

There were no hosepipe restrictions, drought Orders or sprinkler/unattended hosepipe restrictions during the 2022/23 reporting year and therefore, the percentage population experiencing DG4 Restrictions on Use of Water is 0.0% for Lines 21, 22 and 23.

Also therefore, no detailed timetables for hosepipe restrictions have been necessary and the recording template has a Nil return.

Other calculations would have been based on information provided by Asset Information Development and on connected population figures supplied in Table 7, Lines 13-16 but

excluding Lines 14 & 16 for the Billed and Measured population. The total population would be taken from Table 2 Line 20 (winter population).

The reliability assessments of “A” are based on the established procedures for the making of any order to prohibit or restrict the use of water. The accuracy assessments of “1” are a reflection that none of the population was affected by restrictions during the report period.

Future Reporting

Northern Ireland Water will continue to develop a series of revised DG4 procedures which clarifies the reporting requirements and definitions and the responsibilities of those involved in the reporting process. An Information Management Systems project Board and team is continuing to consider further development of existing reporting systems to capture DG4 events on a stand alone basis. This will provide a more detailed breakdown and audit trail of areas affected if any restrictions are not applied Province wide.

The following documents outline in more detail the monitoring and recording processes that are currently in place:

1. NIW – DG4 Procedures May 2023
2. Water Shortage Management Process Guidelines 2019
3. DG4 – Recording of Affected Populations and Durations for AIR23

Annex A – Line Methodology for Table 2**A) Properties Receiving Pressure/Flow Below Reference Level****Line 1 – Total Connected Properties at Year End**

The total number of properties (domestic and non-domestic) connected to the distribution system at the end of the 2022/2023 reporting year. This includes properties, which are connected but not billed (for example, temporarily unoccupied), but excludes properties which have been permanently disconnected (for example logical demolitions).

This figure is calculated from the Rapid Property Summary for AIR23 (dated 31st March 2023) as attached.



Total Connected properties at Year End	AIR23
Non-Household Unmeasured	15719
Non-Household Measured	77815
Household Unmeasured	762648
Household Measured – Not Charged (test meters)	8
Household Measured	49563
Household Measured – No meter	0
Household Site Meters	4328
Household Unmeasured – Not Charged	17
Total Connected Properties at Year End	910098

NORTHERN IRELAND WATER LIMITED - ANNUAL INFORMATION RETURN

ANNUAL INFORMATION RETURN - TABLE 3 KEY OUTPUTS
SEWERAGE SERVICE - INTERNAL FLOODING (TOTAL)

DESCRIPTION	UNITS	DP	1	2	3	4	5	6	7	8	9	10	11	12
			REPORTING YEAR 2015-16 CG	REPORTING YEAR 2016-17 CG	REPORTING YEAR 2017-18 CG	REPORTING YEAR 2018-19 CG	REPORTING YEAR 2019-20 CG	REPORTING YEAR 2020-21 CG	REPORTING YEAR 2021-22 CG	REPORTING YEAR 2022-23 CG	REPORTING YEAR 2023-24 CG	REPORTING YEAR 2024-25 CG	REPORTING YEAR 2025-26 CG	REPORTING YEAR 2026-27 CG
A DGS ANNUAL FLOODING SUMMARY														
1 Number of domestic properties connected to sewerage system	000	1	638.1 A2	648.6 A2	657.5 A2	668.3 A2	677.1 A2	685.0 A2	692.1 A2	698.6 A2				
(i) OVERLOADED SEWERS														
2 Properties flooded in the year (overloaded sewers)	nr	0	3 B2	3 B2	0 B2	7 B2	0 B2	0 B2	7 B2	1 B2				
3 Flooding incidents in the year (overloaded sewers)	nr	0	4 B2	3 B2	0 B2	0 B2	0 B2	0 B2	6 B2	14 B2				
4 Flooding incidents (overloaded sewers attributed to severe weather)	nr	0	1 B2	2 B2	0 B2	7 B2	0 B2	3 B2	6 B2	13 B2				
4a Properties flooded in the year attributed to severe weather	nr	0	1 B2	2 B2	0 B2	7 B2	0 B2	3 B2	7 B2	13 B2				
5 Props. where flooding limited to uninhabited cellars only (o/loaded sewers)	nr	0	0 B2	0 B2	0 B2	0 B2	0 B2	0 B2	0 B2	0 B2				
(ii) OTHER CAUSES														
6 Properties flooded in the year (other causes)	nr	0	38 B2	47 B2	33 B2	23 B2	24 B2	16 B2	30 B2	29 B2				
7 Properties which have flooded more than once in the last ten years (other causes)	nr	0	11 B2	21 B2	20 B2	21 B2	24 B2	26 B2	24 B2	23 B2				
8 Flooding incidents (other causes - equipment failures)	nr	0	1 B2	1 B2	0 B2	2 B2	4 B2	0 B2	0 B2	0 B2				
9 Flooding incidents (other causes - blockages)	nr	0	34 B2	38 B2	26 B2	17 B2	6 B2	11 B2	19 B2	15 B2				
10 Flooding incidents (other causes - collapses)	nr	0	3 B2	8 B2	7 B2	4 B2	14 B2	5 B2	12 B2	14 B2				
11 Props. where flooding limited to uninhabited cellars only (other causes)	nr	0	0 B2	0 B2	0 B2	0 B2	0 B2	0 B2	0 B2	1 B2				
B DGS PROPERTIES ON THE AT RISK REGISTER														
(i) SUMMARY														
12 2 in 10 register at end of year	nr	0	59 B2	61 B2	57 B2	57 B2	55 B2	50 B2	52 B2	49 B2				
13 1 in 10 register at end of year	nr	0	7 B2	6 B2	4 B2	2 B2	2 B2	0 B2	1 B2	0 B2				
14 Total 1 in 10 and 2 in 10 properties on the register at end of year	nr	0	66 B2	67 B2	61 B2	59 B2	57 B2	50 B2	53 B2	49 B2				
15 1 in 20 register at end of year	nr	0	94 B2	89 B2	73 B2	65 B2	62 B2	58 B2	54 B2	53 B2				
15a Potential risk of property flooding identified requiring further investigation to assess at risk category	nr	0	1 B2	2 B2	0 B2	1 B2	2 B2	0 B2	0 B2	0 B2				
16 Props. on the register which have not flooded in the past 10 yrs (excl. severe weather)	nr	0	22 B2	27 B2	26 B2	11 B2	19 B2	22 B2	27 B2	29 B2				
17 Properties which have not flooded internally but suffer restricted toilet use (RTU)	nr	0	0 B2	0 B2	1257 B2	1 B2	1 B2	1 B2	4 B2	4 B2				
(ii) ANNUAL CHANGES TO 2 IN 10 & 1 IN 10 REGISTERS														
22 Removed by company action	nr	0	3 B2	3 B2	6 B2	4 B2	1 B2	10 B2	1 B2	2 B2				
23 Removed because of better information	nr	0	2 B2	1 B2	0 B2	2 B2	0 B2	2 B2	0 B2	0 B2				
24 Added because of better information (actually flooded)	nr	0	3 B2	3 B2	0 B2	1 B2	0 B2	0 B2	3 B2	2 B2				
25 Added because of better information (modelled)	nr	0	0 B2	2 B2	0 B2	3 B2	0 B2	6 B2	0 B2	0 B2				
26 Average capex cost of permanent solutions to 1 in 10 & 2 in 10 DGS problems	E000/prop	1	230.0 B2	32.8 B2	184.5 B2	577.4 B2	56.0 B2	301.0 B2	93.0 B2	1997.0 B2				
(iv) ANNUAL CHANGES TO THE 1 IN 20 REGISTER														
30 Removed by company action (1 in 20)	nr	0	4 B2	4 B2	11 B2	5 B2	0 B2	1 B2	2 B2	1 B2				
31 Removed because of better information (1 in 20)	nr	0	11 B2	1 B2	5 B2	5 B2	4 B2	3 B2	2 B2	0 B2				
32 Added because of better information (actually flooded - 1 in 20)	nr	0	1 B2	0 B2	0 B2	0 B2	0 B2	0 B2	0 B2	0 B2				
33 Added because of better information (modelled - 1 in 20)	nr	0	0 B2	0 B2	0 B2	2 B2	0 B2	0 B2	0 B2	0 B2				
34 Average capex cost of permanent solutions to 1 in 20 DGS problems	E000/prop	1	272.9 B2	38.8 B2	216.6 B2	482.1 B2	0.0 B2	693.8 B2	58.0 B2	1997.0 B2				

Table 3 - Key Outputs – Sewerage Service – Internal Flooding

Line 1 – Number of Domestic Properties Connected to the Sewerage System

NI Water's data on property counts and classifications is reported monthly from RapidXtra within the Rapid Property Summary (RPS). The data is extracted from the Diamond Warehouse via Microsoft SQL Server to produce the RPS report.

Our AIR22 methodology has remained consistent with previous years – using the automated Property Model tool to populate Table 3 figures (this was first introduced in AIR12 – the RPS as the input).

The RPS provides us with a snapshot at the end of each month in terms of net movement; however it alone does not support in the explanation of gross movements within the data. With this in mind, during the 2022/23 reporting year the C&OD Services MI & Data Team explored the use of Power BI to re-create the RPS with a drill down function to display the gross movement. The Power BI property models developed take their direct feed from the Diamond Warehouse in order to refresh. These models provide us with information on gross movements and allow us to 'slice and dice' the data from various angles, providing invaluable insights. The plan is to further enhance and incorporate these models across the business during 2023/24.

Customer/Property information is updated through:

- BAU ('business as usual') customer contacts, such as new connection requests, customer move in/move outs, or
- through Data Quality initiatives/Projects, and/or
- Metering work streams e.g. UNHH (Selectives), Optants, and Proactive Meter Exchange etc.

Under the Water & Sewerage Services (2006) Order, NI Water were required to install meters on all new household connections from April 2007. This practice has stopped as directed by a change in legislation, which took effect in July 2016. The legislation was amended by Regulations, which in effect relieved NI Water of the obligation to install meters at newly connected domestic properties. As domestic customers are not charged on a measured basis, the property is reported as unmeasured. Some domestic properties were initially reported as measured in AIR10 but this was rectified as per the erratum to AIR10. Depending on the basis for charging when domestic billing is introduced, these customers can be activated as measured household if required.

Data on population continues to be obtained from Northern Ireland Statistics and Research Agency (NISRA), adjusted for the winter months based on information published by the Department for Economy (DFE) and the Central Statistics Office (CSO), Ireland.

The difference between the AIR22 and the AIR23 figure is 6,761. The breakdown can be explained as follows;

1. New Connections during the 2022/23 reporting year. The figures are based on data supplied by our Customer Connections Team and represent completed connections during the reporting year. The projections for New Connections remain in line with the agreed PC21 forecasts, however, if we notice an upturn or downturn, we will review and amend (during the compilation of the Principal Statement)

2. As a result of a customer contact, e.g. septic tank empty request, no water complaint, blocked sewer, updating of standing data e.g. removal of services etc. Within this category there are 2 scenarios:
 - (a) The adding of properties NI Water allegedly did not know about
 - (b) The adding of duplicates as the customer's address could not be found on Rapid. Rapid may hold the site number but when the customer contacts NI Water, they quote the verified postal address, which is different, therefore creating a duplicate. The street name may also have changed from the time of New Connection to that of customer contact (street names can change in the early stages of site development).
3. Removal/reclassification of properties as a result of data quality initiatives/projects
 - a. Duplicate properties
 - b. Reclassification of properties that were recorded in error
4. Change in occupancy status – movement from void/vacant to occupied and vice-versa.

For NI Water, accurate property data is fundamental for many systems and processes, including customer service, metering, billing, consumption, leakage and Major Incident Planning & Response. The Rapid Customer Contact System contains the master property data for NI Water.

As Data Owner for Property Standing Data, The Head of C&OD Services is responsible for the property standing data held by NI Water; this is monitored and managed through the Corporate Property Register (CPR) Project. The C&OD Business Services MI & Data Team chair this group.

The role of the CPR project is to agree a single consistent source of property data and to ensure that there is appropriate governance, controls and reporting for changes made to core data on the system. As Property Data Owners, we need to ensure the processes around creation, maintenance and demolition of properties are governed and appropriate control points and associated reporting are in place. Control is key for us; as such we have identified the systems, processes and people using property information across the business, alongside confirming data accuracy and endeavouring to reduce the opportunities for erroneous data entry and creation (such as the inability to recreate demolished properties or duplicate properties).

The issues under consideration were identified as of corporate relevance, therefore, to ensure appropriate direction and governance the CPR was formalised. Key objectives include:

1. To agree a single consistent source of property data.
2. To ensure the source property data represents accurate, up-to-date information appropriate for use by the business.
 - a. To understand and agree data primacy in respect of data updates from NI Water and external (Land & Property Services - LPS) sources
 - b. To ensure the processes around creation (i.e. New Connections), maintenance and demolition of properties are governed and appropriate control points and associated reporting are in place. i.e. through data validation
 - c. To co-ordinate property reconciliations between NI Water & external sources i.e. Data Sharing Agreements between NI Water & LPS, NI Water & Belfast City Council (BCC) etc and understand the reasons and validity of any differences

- d. To understand and ensure the adequacy of long term procedures for database maintenance, including the updating of data standards and associated CDE M&M Plans
3. To ensure the reporting requirements for the business are met relating to data held on Rapid, particularly, but not exclusively, in respect of tariffs, leakage, Annual Information Returns (AIR) & Principal Statement (PS) returns.
4. Challenge the data in the areas of
 - a. Data categorisation & structure
 - b. Data robustness – i.e. where is our data good and where is there opportunity for improvement? Identify projects that could aid improvement
 - c. Data alignment – both internally and externally. Internally between systems such as Rapid, Ellipse, GIS, Diamond, Netbase, IMS etc. Externally through data reconciliations, such as LPS above.
5. To agree measures to improve the quality and integrity of the data, particularly the key CDEs as monitored by IMU
6. To agree the content and frequency of reports required by NI Water.
7. To agree the quality checking criteria for the above data and reporting and develop a Quality Plan including the determination of responsibilities and audit trails.
8. To produce & circulate an 'operate and maintain' programme for property data to the business.

The focus for the CPR project remains the same, including analysis and action on:

- Creation of an agreed single consistent source of property information, running alongside the CBC3 timelines
- Volume of properties coming onto the Rapid billing system on a monthly basis
 - new connections
 - customer contact
 - project work
- Volume of properties coming off the Rapid billing system (demolished)
 - sample check to ensure reason for demolition has been noted and on system audit trail recorded
- Volume of properties amended on the Rapid billing system
 - In particular, address fields -> building number, street name, town and postcode
 - sampling to identify if the data changes are data improvement or data regression
 - if data regression, further analysis into the process is undertaken
- Review of access privileges
 - Rapid audit
 - Through monthly audit samples
 - Internal CRs require sign off from CPR team as BAU
 - Working with Echo to review access privileges on an ongoing basis
- Interruptions to supply notices – returned mail
 - This returned mail has been previously brought to the attention of LPS and include properties that LPS have classified as live properties despite being returned as 'no such address' etc
 - The 2 way communication with LPS will help underpin our governance work and provide direction to the business on practices

Annex A details the Line Methodology followed by the figure calculated for Table 3 Line 1.

Internal sewer flooding

Objective/Aim

To maintain a verifiable DG5 register with the aim to provide an auditable method for identifying the specific properties which are affected by flooding or are at risk of flooding and the cause of flooding.

Internal Flooding Process

In line with the regulators instructions, an end-to-end review of the internal flooding process has been carried out. Wastewater Business Unit (WWBU) carries out extensive robust investigations to determine the cause of every individual internal flooding incident. Any internal flooding that does not fall into these Flooding Other Causes (FOC) categories is passed to Asset Performance for them to carry out full Hydraulic Capacity evaluations and record them under the appropriate sections of the register. The evidence gathered is brought to an expert panel (the DG5 Panel) who examine the evidence presented for each incident and govern the addition of properties to and removal of properties from the register. All properties where actual internal flooding has occurred are recorded in the appropriate sections of the DG5 register i.e. In the Excluded section: FOC due to Blockages, Collapses, Equipment Failure or Severe Weather, or on the register in the 1:20, 1:10 or 2:10 Sections.

The register is held on an Oracle database represented on the Corporate Asset Register as GIS layer on CARTomap. Although the Internal Flooding process is now in place, the process itself continues to be refined.

NIW has direct access to the MUL Dashboard where all flooding jobs that have been sent to the contractor and their current status is visible. If the job has been completed NIW can view the data being provided and if there are any discrepancies they can be addressed immediately. The Business Unit proactively ensures that the FIR is fully completed by continual liaison between the MUL Contracts Manager and the Customer and Regulation manager (NIW) where queries/ problems are discussed and then resolved/ rectified by MUL. NIW has set up formal quarterly meetings with the Head of Function, the Business unit Manager, the Customer and Regulation manager and OCMC (Operations Contract Management Centre) (all NIW) and the MUL Contracts Manager to ensure all parties are fully aware of what is happening. On any alleged internal flooding incident where there is ambiguity, the Customer Field Manager attends to resolve the issue. WwBU also complete a monthly quality report to OCMC (Operations Contract Management Centre) which is used to assess if the contractor is penalised for not providing accurate data.

Problems as yet Undiscovered

A process has been established to allow problems as yet unreported to be included in the register through field managers flooding incident reports (FIR). In addition flooding incident field investigations now include concentric circle surveys to pick up unreported flooding and modeling provided by Drainage Area Plan consultant.

Assumptions

For the purpose of AIR23, NIW has assumed that a single incident includes recorded complaints from the same property on the same day or within three days. '3 days' was chosen on the basis that a noticeable volume of repeat calls tend to be received within three days of an incident occurring. There is then a much longer passing of time before calls are again received from the same locality, suggesting that the original incident has passed and that the calls relate to a different incident.

An incident of internal flooding is assumed to be where a property has been flooded internally. If two adjacent properties are flooded at the same time they are classed as two properties and two incidents.

Where a single property floods internally on two separate occasions then this is recorded as one property and two incidents.

Calculation Process - Lines 2 to 11,15a

Data gathering and calculation is as described below.

Sources/Primary Process

Lines 2 – 11, 15a Properties and flooding incidents

A download of internal flooding records was obtained from the Ellipse system for the period April 2022 to March 2023 on a month by month basis. Investigations were carried out for each reported incident and those properties found not to be flooded after investigation, using information from the Sewer Maintenance Contractor, Flood Incident Report (FIR) Forms, Field Manager reports, Customer Field Manager reports, modelling provided by Drainage Area Plan consultant and contacting the Customers directly, were removed. The remaining properties were recorded as Flooding Incidents.

Sources/Secondary Process

1. Wastewater Business Unit (WWBU) carries out further investigations to determine the cause of every internal flooding incident.
2. WWBU assess the information held on customer report, Flood Incident Report (FIR), along with photographic evidence, closure details provided by the contractor and modelling provided by Drainage Area Plan consultant.
3. WWBU determines if the cause of the flooding incident was hydraulic incapacity or flooding other cause, i.e. Blocked Sewer, Equipment Failure, Collapsed Sewer or Severe Weather. This is done by a number of methods including site visits, concentric circle surveys, Customer Field Manager reports, customer interviews, field manager interviews and review of existing incident information. WWBU have also set up a formal InterDirectorate route to get copies of recorded Customer calls made available for record purposes.
4. If hydraulic incapacity is confirmed NIW now run a Hyrad Weather radar system report which is used to determine if the incident is as a result of severe weather (Line 4).
5. These properties were then recorded on a spreadsheet under the appropriate categories for lines 2, 3, 4, 4a, 5, 6, 8, 9, 10 and 11 using the information gathered from, the Sewer Maintenance Contractor, Flooding Report Forms, Field Manager reports, Drainage Area Plan consultant and contacting the Customers directly. All incidents of internal flooding attributed to overloaded sewers, including those attributed to severe weather and are included in the total in Table 3 Line 3. All incidents of internal flooding attributed to severe weather are included in the total in Table 3 Line 4. A folder of evidence was created for all confirmed cases and this was brought to the monthly DG5 Panel for approval and addition to the appropriate section of the register. At the end of the reporting year this was the data used for AIR 23 returns.
6. The figure for line 7 was obtained by getting a report ran in the DG5 Oracle Database which holds the information as a DG5 layer in the GIS system.
7. Line 15a relates to properties that have not been fully investigated and categorized

Confidence Grading for Table 3 lines 2 - 11, 15a

Every reported incident of internal flooding is thoroughly investigated and cross-checked with the returned Flooding Incident Report Forms, Operations Staff, Customer Field Managers and the Customer where appropriate. Due to the extensive checking by the Business unit the data is then recorded in the appropriate lines therefore the confidence grade on the figures reported for lines 2, 3, 4,4a, 5, 6, 7, 8, 9, 10, 11, 15A is deemed to be B2.

**Lines 12 - 34 DG5 Properties on the At Risk Register and Annual Changes
PC21 Outputs Year 1**

The PC21 Business Plan included a target for removal of properties from the DG5 Internal Flooding Register by company action, which was 57:

The number of removals achieved in 22/23 was 3.

KR489 [Redacted] Flood Alleviation

- [Redacted] Belfast BT10 0HF (1 in 20)
- [Redacted] Belfast BT10 0HF (2 in 10)
- [Redacted] Belfast BT10 0HF (2 in 10)



Additions to the Register

In year 22/23, there was two properties added to the flooding register

- [Redacted] Portstewart, BT55 7BE (2 in 10)
- [Redacted] Portstewart BT55 7BE (2 in 10)



Properties on the 2 in 10 and 1 in 10 register which have not flooded in the last 10 years

There are 29 properties on the Register which have not flood in the last 10 years see uploaded file below.



Line 17 Restricted Toilet use

There are four properties on the DG5 Register at present.

- [Redacted] South, Londonderry BT48 7PF (2 in 10)
- [Redacted], Londonderry BT48 7PF (1 in 10)
- [Redacted] Ballynahinch BT24 8TF (2 in 10)
- [Redacted], Ballynahinch BT24 8TF (2 in 10)

The tables below is how the DG5 properties additions and removals are tracked, throughout the financial year. The actual figure for Internal at risk is 102 as 17A Portmore Road has been duplicated. (technical problem being addressed).



Lines 26 and 34 – Average capex cost of permanent solutions

Calculation summary for Lines 26 and 34 regarding average price for properties removed by company action from the DG5 Register. This calculation is the ESL expenditure calculation for each of the capital schemes divided by the number of DG5s removed from each of the categories.



Mitigation Measures

NI Water normally do not carry out mitigation measures as this programme of work is carried out by Rivers Agency as instructed by Local Government. In certain case's NI Water would fit non-return valves.

Approval of Projects

Approval of all projects for expenditure is approved by the Internal DG5 Panel.

There were no cases of 'Unknown cause' of flooding of internal flooding being added to the DG5 Register in 22/23.

Confidence Grades

Confidence Grades for lines 12–16, 22–26 and 30–34 remain at B2.

Annex A – Line Methodology for Table 3

Line 1 – Number of Domestic Properties Connected to the Sewerage System

The total number of domestic properties (including voids) connected to the sewerage system at the end of the reporting year (31st March 2023).

This figure is based on the 31st March 2023 Rapid Property Summary for AIR23, as attached.



The figure is the total domestic properties (gross) connected for sewerage (including site meters as these are not being billed).

Domestic Properties Connected to the Sewerage System	End March 2023
Total Gross Household Sewerage Properties	698,841

NORTHERN IRELAND WATER LIMITED - ANNUAL INFORMATION RETURN

ANNUAL INFORMATION RETURN - TABLE 3A KEY OUTPUTS
SEWERAGE SERVICE - EXTERNAL FLOODING (TOTAL)

DESCRIPTION	UNITS	DP	1	2	3	4	5	6	7	8	9	10	11	12
			REPORTING YEAR 2015-16 CG	REPORTING YEAR 2016-17 CG	REPORTING YEAR 2017-18 CG	REPORTING YEAR 2018-19 CG	REPORTING YEAR 2019-20 CG	REPORTING YEAR 2020-21 CG	REPORTING YEAR 2021-22 CG	REPORTING YEAR 2022-23 CG	REPORTING YEAR 2023-24 CG	REPORTING YEAR 2024-25 CG	REPORTING YEAR 2025-26 CG	REPORTING YEAR 2026-27 CG
A ANNUAL FLOODING SUMMARY														
(i) OVERLOADED SEWERS														
1 Areas flooded externally in the year (overloaded sewers)	nr	0	23 D6	20 D6	15 D6	57 D6	17 D6	12 D6	11 D6	4 D6				
2 Curbside flooding incidents in the year (overloaded sewers)	nr	0	17 D6	16 D6	11 D6	46 D6	17 D6	10 D6	9 D6	3 D6				
3 Highway flooding incidents (overloaded sewers)	nr	0	6 D6	4 D6	4 D6	9 D6	0 D6	2 D6	2 D6	1 D6				
4 Other flooding incidents (overloaded sewers)	nr	0	0 D6	0 D6	0 D6	2 D6	0 D6	0 D6	0 D6	0 D6				
5 Total flooding incidents (overloaded sewers)	nr	0	23 D6	20 D6	15 D6	57 D6	17 D6	12 D6	11 D6	4 D6				
6 External flooding incidents (overloaded sewers attributed to severe weather)	nr	0	6 D6	3 D6	3 D6	41 D6	5 D6	12 D6	23 D6	27 D6				
6a Areas flooded externally attributed to severe weather	nr	0	6 D6	3 D6	3 D6	41 D6	5 D6	12 D6	23 D6	27 D6				
(ii) OTHER CAUSES														
7 Areas flooded externally in the year (other causes)	nr	0	3,889 D6	3,819 D6	3,466 D6	4,273 D6	4,515 D6	3,479 D6	2,793 D6	2,710 D6				
8 Areas which have flooded more than once in the last 10 years (other causes)	nr	0	NIC	N/A	NIC	0 D6	0 D6	NIC	NIC D6	NIC D6				
9 Flooding incidents (other causes - equipment failure)	nr	0	19 D6	6 D6	3 D6	4 D6	15 D6	11 D6	6 D6	6 D6				
10 Flooding incidents (other causes - blockages)	nr	0	3,773 D6	3,543 D6	3,155 D6	3,962 D6	4,044 D6	3,457 D6	1,812 D6	1,757 D6				
11 Flooding incidents (other causes - collapses)	nr	0	97 D6	268 D6	308 D6	307 D6	456 D6	11 D6	975 D6	944 D6				
B AREAS ON THE 1:10, 2:10, 1:20 AT RISK REGISTER														
(i) SUMMARY														
12 1 in 10 register at end of year	nr	0	228 D6	232 D6	237 D6	251 D6	252 D6	239 D6	250 D6	253 D6				
13 1 in 10 register at end of year	nr	0	20 D6	20 D6	20 D6	20 D6	28 D6	17 D6	9 D6	11 D6				
14 1 in 20 register at end of year	nr	0	86 D6	87 D6	87 D6	87 D6	88 D6	83 D6	83 D6	83 D6				
15 Total on the 1:10, 2:10, 1:20 registers at end of year	nr	0	332 D6	339 D6	344 D6	358 D6	368 D6	339 D6	342 D6	347 D6				
15a Potential risk of property flooding identified requiring further investigation to assess at risk category	nr	0	NIC	N/A	NIC	N/A	0 D6	NIC	0 D6	0 D6				
(ii) ANNUAL CHANGES TO 1:10, 2:10, 1:20 REGISTER														
20 Removed by company action (external only)	nr	0	0 A1	1 A1	0 B2	0 B2	0 D6	0 A1	5 D6	0 D6				
21 Removed by company action (external leaks)	nr	0	0 A1	0 A1	1,257 B2	0 B2	0 D6	0 A1	0 D6	0 D6				
22 Removed because of better information	nr	0	0 A1	0 A1	2 B2	0 B2	0 D6	0 A1	0 D6	0 D6				
23 Added because of better information (actually flooded)	nr	0	16 A1	7 A1	9 B2	14 B2	10 D6	6 A1	5 D6	5 D6				
24 Added because of better information (modelled)	nr	0	0 A1	1 A1	0 B2	0 B2	0 D6	0 A1	0 D6	0 D6				
25 Transferred from external to internal register	nr	0	0 A1	0 A1	0 B2	0 B2	0 D6	0 A1	0 D6	0 D6				

Table 3a - Key Outputs – Sewerage Service – External Flooding

Introduction

The processing of external flooding incidents has continued as it did in year 2021-22. The in-house resource devoted to this processing and analysis continues to be extremely limited. As a consequence, the process continues to be heavily dependent upon the accuracy of the information provided by the external maintenance contractor. Throughout the year, analysis of external flooding incidents is based upon monthly spreadsheets and Flooding Incident Report sheets, submitted by the external maintenance contractor. Each incident which is classified by the contractor as potentially 'hydraulic' – i.e. which does not have an 'other cause' identified - is subject to an investigation by the Asset Performance section. The investigation will either recommend that the incident is confirmed as hydraulic, or recommend that the incident is excluded.

Each incident is classified by the contractor as affecting one of curtilage, highways or 'other'. An analysis is carried out to define the total number of areas affected. Those incidents classified by the contractor as 'other causes' are defined, (by the contractor), as due to one of 'equipment failure', blockage or collapse.

Lines 1-11 - Annual Flooding Summary

The analysis of external flooding incidents is summarised in the spreadsheet 'Reported External Flooding for 2022-23'; the figures within Table 3a have been transferred from that spreadsheet.

The total number of 'overloaded sewers' incidents for the year 2021-22 was 4.

The total number of 'other causes' incidents has decreased from 2793 in 2021/22 to, 2710 in 2022/2023.

As there is reliance upon the information supplied by the external contractor, a low confidence grade, of D6, continues to be attached.

Line 8 – Areas which have flooded more than once in the last 10 years (other causes)

This line cannot be populated as the processing of external incidents has only been properly executed for nine years.

Lines 12-25 - At Risk Register

The total number of areas, on the Register at the start of year 2021/22 was 342.

The processing of external flooding incidents has continued as it did in year 2021/22, resulting in 5 areas being added to the Register, in assigned categories (2 in 10, 1 in 10, 1 in 20)

This brings the total number of areas on the Register to 347.

As the primary input to the register is the processing of annual flooding incidents, the same confidence grade (D6) is assigned.

Table 4 – Customer Service 1

DG6 – Response to Billing Contacts

This was the sixteenth year of non-domestic billing by Northern Ireland Water (NIW). Following the decision of Northern Ireland Executive, domestic charges continued to be deferred for 2022/23 charging year.

As in previous years, with the exception of 2020/21, the planned, Utility Regulator approved tariff increase took effect from 1 April 2022.

In 2022/23 we revised our Debt Management and Customer Engagement Strategy, moving away from the strategy adopted at the start of the Covid-19 pandemic. This revised strategy, implemented following consultation with the Consumer Council, retained some of the aspects of the Covid-19 strategy, including lengthened recovery sequences in recognition of the cost-of-living crisis.

The chart below shows the DG6 received volumes during 21/22 – 22/23.

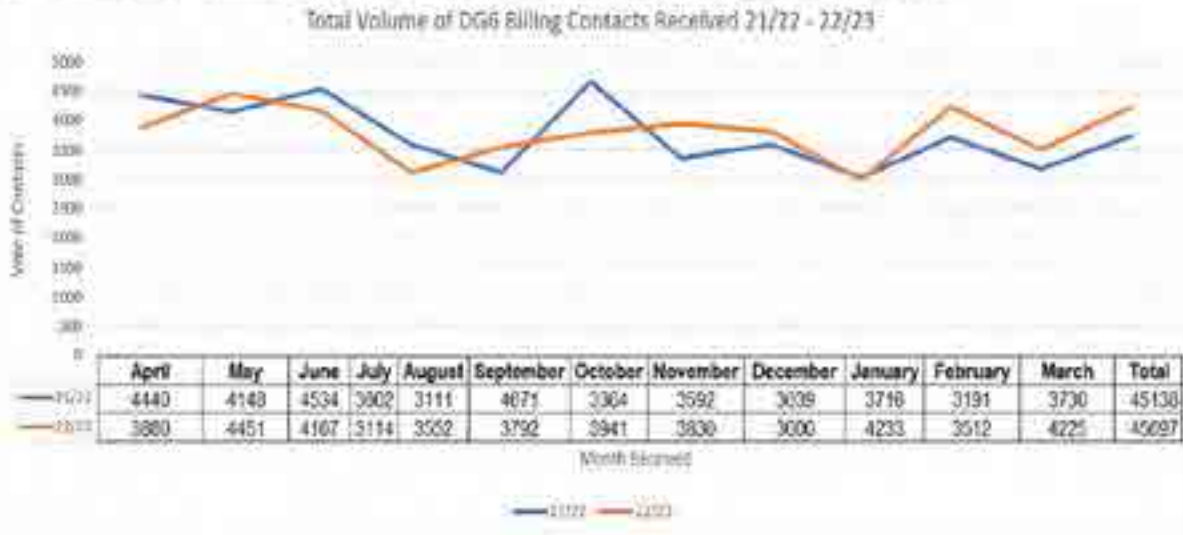


Chart 1 – DG6 Billing Contacts Received 22/23

The increased volume of contacts in Q1, in comparison to Q2-4, can be attributed to the annual bill run whereby unmeasured bills are issued at the beginning of April and measured customers receive their Summary of Charges leaflet, notifying them of the tariffs for the forthcoming financial year. This reflects the normal profile expected following the annual bill run.

Top Reasons for Customer Contact

Table 1 lists the top 5 reasons for DG6 contacts in 2022/23

Top 5 DG6 CMS	Total Number	%	Rank
Debit / Credit Card Payment	9454	21%	1
P Promise Of Payment	3544	8%	2
BI Request Copy Bill	3296	7%	3
BI Explanation Of Calculation	2573	6%	4
R Refund Request	2416	5%	5

Table 1 – Top 5 DG6 contact types 2022/23

Analysis of DG6 Received CMS Types in 21/22 against 22/23 highlights that Debit/Credit Card Payment was once again the top ranked CMS type for DG6 contacts. There was a negligible change in the volume received, less than 1%, in 22/23 compared to 21/22.

The Promise of Payment CMS type showed an 11% increase in volume in 22/23. This could possibly be attributed to the cost-of-living crisis and commercial customers seeking to better manage their cash flow.

Refund Requests CMS type saw a 25% increase in 22/23. This can be attributed to a concerted effort from our Collections & Recoveries department to pro-actively apply domestic allowances to customer accounts where applicable and also making customers aware of longstanding credit balances on their account.

Copy Bill Request and BI Explanation Of Calculation CMS Types fell by 3% and 7% respectively in 22/23.

A customer-centric and strategic account management approach to billing query resolution, collections activity and debt management has been maintained throughout the year.

Measures to continue to reduce the volume of customer billing contacts relating to payments include:

- on-going proactive promotion (via social media, text alerts, call scripts, customer correspondence, etc.) of the online Quick Pay facility as well as the NI Water Self Service portal

Reporting Method

The source data for DG6 Table 4 (Lines 1 to 5) is reported using the submitted methodology stated for DG6.

On the first working day of each month, the DG6 reports are run for both the current and previous months to accurately update received and closed figures on a retrospective basis to support the annual reconciliation. Variances are queried with NI Water Billing & Revenue, Contacts Team and Echo and resolved as they arise.

Responses

For DG6 reporting purposes, the date of resolution of the item or date of the substantive response/holding response is used as the closure date. If a customer has a billing-related query, which leads to a recalculated bill, the date of the response (verbal or written) explaining the reason for the bill is used as date and timestamp of the response. The recalculated bill is generated overnight and issued under separate cover.

Under normal circumstances, the follow up dates provided to customers for DG6 contacts is 20 working days (equating to one calendar month) from the date of the first holding response being issued. This period allows time for a site visit to be completed by a Meter Query Technician (MQT), the resolution confirmed and the final response issued to the customer. Some meter surveys may take longer, so this category of holding response is extended out to 30 days.

NB. The majority of DG6 contacts which cannot be resolved within 5 days require a site visit by an MQT. It is not unusual that the requirement for remedial meter maintenance work is identified during these site visits. The 20 day period should allow time for an initial site visit to be performed by a MQT, any routine meter maintenance work requested and completed, the resolution confirmed and the final response drafted and issued to the customer.

However, in certain circumstances, especially where a site visit is not required, a 20-day hold may not be required and a shorter period is given in the holding response.

Re-categorisation between Regulatory Categories

NIW has procedures in place for instances where written contacts are changed from one DG category to another e.g. DG6 to DG7. The process document, “**Re-categorisation of written contacts**”, is embedded as Document 1 for reference purposes.



NIW_Re-categorisation of written contacts

Document 1 - Re-categorisation of written contacts

Open contacts can be re-categorised using Rapid screen wccm11 (Contact Amendments), and closed contacts can be re-categorised using Rapid screen wccm91 (Close Date Maintenance).

There are a number of stages at which the categorisation of a billing contact can be reviewed after it has been scanned, logged and indexed.

Whilst not exhaustive, the main activities during which the categorisation of contacts is regularly checked are:

- Agent Review - it is the responsibility of the Agent to ensure that each contact they are handling is closed in line with reporting guidelines. On initial review, they should ensure that the contact has been correctly categorised in line with the DG/Contact definitions. If incorrect, it is their responsibility to ensure that the contact is updated on Rapid accordingly. If unsure, they should seek guidance from their line manager.
- The CSD Services MI & Data Team perform monthly sampling on 50 randomly selected closed DG6 Telephone and Written contacts. Any discrepancies found when carrying out the Telephone sampling are reported and escalated to Echo as part of NI Water’s response to the Monthly Business Review Pack.
- Written sampling results are sent to the Contacts & Complaints & Executive Mail (C & C&EM) Team Managers (TMs) for review. It is the responsibility of the C & C&EM TMs to ensure that any agreed exceptions which require re-categorisation are retrospectively updated on Rapid.
- C & C&EM Coaching – TMs perform coaching using sampling of closed contacts. It is the responsibility of the TMs to ensure that any contacts identified through this process which require re-categorisation are updated on Rapid.

Email and Faxes

Systems remain in place to ensure that the receipt date of email/fax contacts is recorded as the date it is delivered to the company with the following working day being recorded as Day 1.

Payment Cards

NI Water does not issue payment cards to non-domestic customers.

DG6 Volumes Year-on-year

DG6 received volumes from 2020/21 to 2022/23 displayed in Chart 2.



Chart 2 - DG6 received 2020/21 to 2022/23

The total received volume for 2022/23 is 45,697. This is an increase of 559 contacts, or 1% of the 2021/22 figures.

End of Year (Contacts not dealt with at end of year)

Based on data extracted on 22.05.23

- 12 DG6 contacts received during 22/23 remained open;
- The oldest open DG6 contact received during 22/23 was 64 working days;
- Of the 12 DG6 contacts still open, all have been open for more than 5 working days, each pending completion of agreed actions outlined in substantive holding responses as verified by a sample check of contacts still open at year end;

Self Service Portal

NIW has further enhanced its web-based services for customers. The services are aimed predominantly at non-domestic customers who have an account with NIW and make it easier for them to pay bills online and check their accounts. The service also allows domestic customers with septic tanks to order their tank to be ‘de-sludged’.

Once registered, non-domestic customers are able to:

- view their account balance;
- view bills and payment history;
- pay a bill;
- manage their account details;
- manage multiple NIW accounts (inc. consolidated) on their Portal profile;
- invite other registered / approved users to access / view accounts;
- view / download historical consumption data;
- view desludging request history;
- process a new desludging request.

Line 6 – Number of Properties Connected for Water Supply Only

AIR22 figure – 166389

AIR23 figure – 167343

There has been a net increase of circa 1908 properties during the 22/23 year, which were connected for water only.

Line 7 – Number of Properties Connected for Water and Sewerage Services

AIR22 figure – 736303

AIR23 figure – 742755

There has been a net increase of circa 6452 properties connected for water and sewerage services during the 22/23 year – commentary detailed below.

Line 8 – Number of Properties Connected for Sewerage Services Only

AIR22 figure – 29

AIR23 figure – 28

The number of properties connected for sewerage only has remained the same during the 22/23 reporting year.

As with Table 2, Table 3, Table 7 & Table 13 we have identified that properties can be added to/removed from the billing system via the methods below:-

1. New Connections during the 2022/23 reporting year. The figures are based on a report received from the Customer Connections Team. The figures are based on data supplied by our Customer Connections Team and represent completed connections during the reporting year. The projections for New Connections remain in line with the agreed PC21 forecasts, however we have noted a downturn and will review mid-year (during the draft Principal Statement) to ascertain if projections should be changed.
2. As a result of a customer contact. i.e. septic tank empty request, no water complaint, blocked sewer, updating of standing data e.g. removal of services etc. Within this category there are 2 scenarios:
 - (a) The adding of properties NI Water allegedly did not know about
 - (b) The adding of duplicates as the customer's address could not be found on Rapid. Rapid may hold the site number but when the customer contacts NI Water, they quote the verified postal address, which is different, therefore creating a duplicate. The street name may also have changed from the time of New Connection to that of customer contact (street names can change in the early stages of site development).
3. Removal/reclassification of properties as a result of data quality initiatives/projects
 - a. Duplicate properties
 - b. Reclassification of properties that were recorded in error
4. Change in occupancy status – movement from void/vacant to occupied and vice-versa.

For NI Water, accurate property data is fundamental for many systems and processes, including customer service, metering, billing, consumption, leakage and Major Incident Planning & Response. The Rapid Customer Contact System contains the master property data for NI Water.

As Data Owner for Property Standing Data, The Head of C&OD Services is responsible for the property standing data held by NI Water; this is monitored and managed through the Corporate Property Register (CPR) Project. The C&OD Business Services MI & Data Team chair this group.

The role of the CPR project is to agree a single consistent source of property data and to ensure that there is appropriate governance, controls and reporting for changes made to core data on the system. As Property Data Owners, we need to ensure the processes around creation, maintenance and demolition of properties are governed and appropriate

control points and associated reporting are in place. Control is key for us; as such we have identified the systems, processes and people using property information across the business, alongside confirming data accuracy and endeavouring to reduce the opportunities for erroneous data entry and creation (such as the inability to recreate demolished properties or duplicate properties).

The issues under consideration were identified as of corporate relevance, therefore, to ensure appropriate direction and governance the CPR was formalised. Key objectives include:

1. To agree a single consistent source of property data.
2. To ensure the source property data represents accurate, up-to-date information appropriate for use by the business.
 - a. To understand and agree data primacy in respect of data updates from NI Water and external (Land & Property Services - LPS) sources.
 - b. To ensure the processes around creation (i.e. New Connections), maintenance and demolition of properties are governed and appropriate control points and associated reporting are in place. i.e. through data validation.
 - c. To co-ordinate property reconciliations between NI Water & external sources i.e. Data Sharing Agreements between NI Water & LPS, NI Water & Belfast City Council (BCC) etc and understand the reasons and validity of any differences.
 - d. To understand and ensure the adequacy of long term procedures for database maintenance, including the updating of data standards and associated CDE M&M Plans.
3. To ensure the reporting requirements for the business are met relating to data held on Rapid, particularly, but not exclusively, in respect of tariffs, leakage, Annual Information Returns (AIR) & Principal Statement (PS) returns.
4. Challenge the data in the areas of
 - a. Data categorisation & structure
 - b. Data robustness – i.e. where is our data good and where is there opportunity for improvement? Identify projects that could aid improvement
 - c. Data alignment – both internally and externally. Internally between systems such as Rapid, Ellipse, GIS, Diamond, Netbase, IMS etc. Externally through data reconciliations, such as LPS above.
5. To agree measures to improve the quality and integrity of the data, particularly the key CDEs as monitored by IMU.
6. To agree the content and frequency of reports required by NI Water.
7. To agree the quality checking criteria for the above data and reporting and develop a Quality Plan including the determination of responsibilities and audit trails.
8. To produce & circulate an 'operate and maintain' programme for property data to the business.

The focus for the CPR project remains the same, including analysis and action on:

- Creation of an agreed single consistent source of property information, running alongside the CBC3 timelines
- Volume of properties coming onto the Rapid billing system on a monthly basis
 - new connections
 - customer contact
 - project work
- Volume of properties coming off the Rapid billing system (demolished)
 - sample check to ensure reason for demolition has been noted and on system audit trail recorded

- Volume of properties amended on the Rapid billing system
 - In particular, address fields -> building number, street name, town and postcode
 - sampling to identify if the data changes are data improvement or data regression
 - if data regression, further analysis into the process is undertaken
- Review of access privileges
 - Rapid audit
 - Through monthly audit samples
 - Internal CRs require sign off from CPR team as BAU
 - Working with Echo to review access privileges on an ongoing basis
- Interruptions to supply notices – returned mail
 - This returned mail has been previously brought to the attention of LPS and include properties that LPS have classified as live properties despite being returned as ‘no such address’ etc
 - The 2 way communication with LPS will help underpin our governance work and provide direction to the business on practices

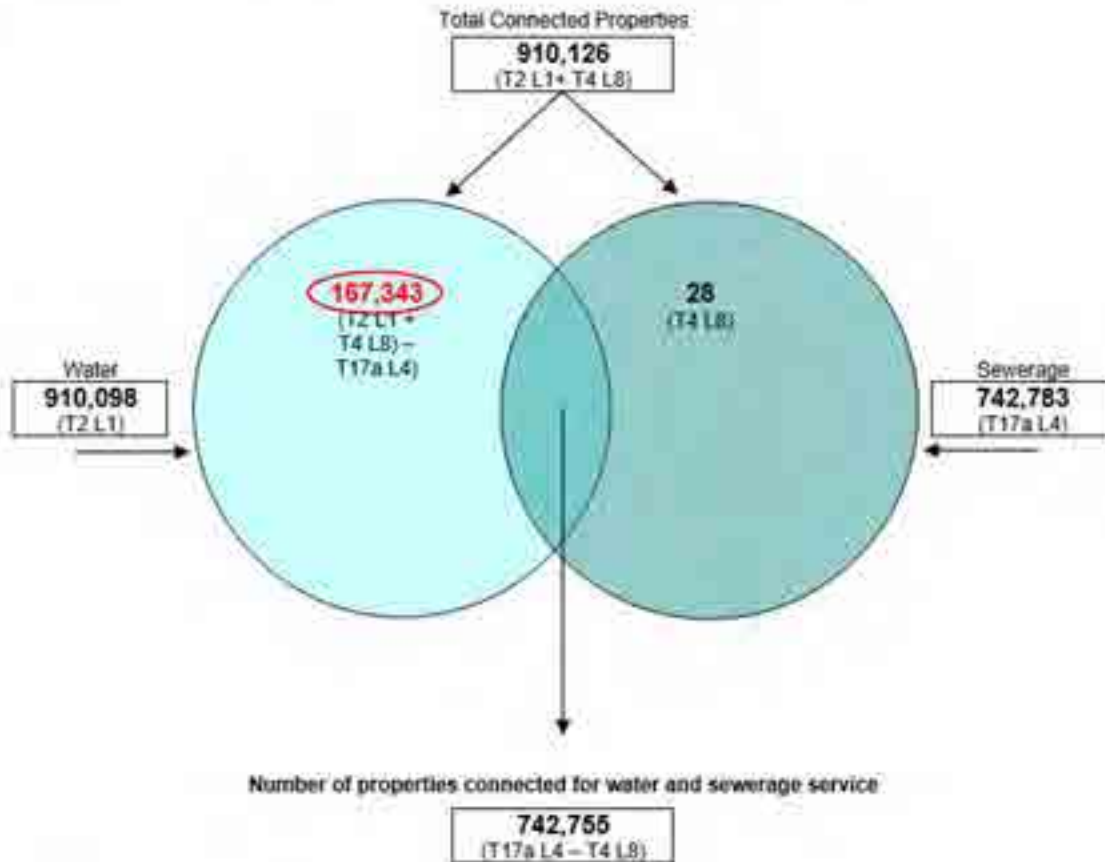
Annex A details the Line Methodology for the figures calculated in Table 4 Lines 6-8.

Annex A – Line Methodology for Table 4 Lines 6-8

Line 6: Number of Properties Connected for Water Supply Only

The total number of household and non-household properties connected to the water distribution system for water supply only, at the end of the AIR23 reporting year. This includes properties, which are connected but not billed (e.g. temporarily unoccupied) but excludes properties which have been permanently disconnected.

This figure is taken from the Rapid Property Summary for AIR23 and is displayed in the diagram below:



Therefore:-

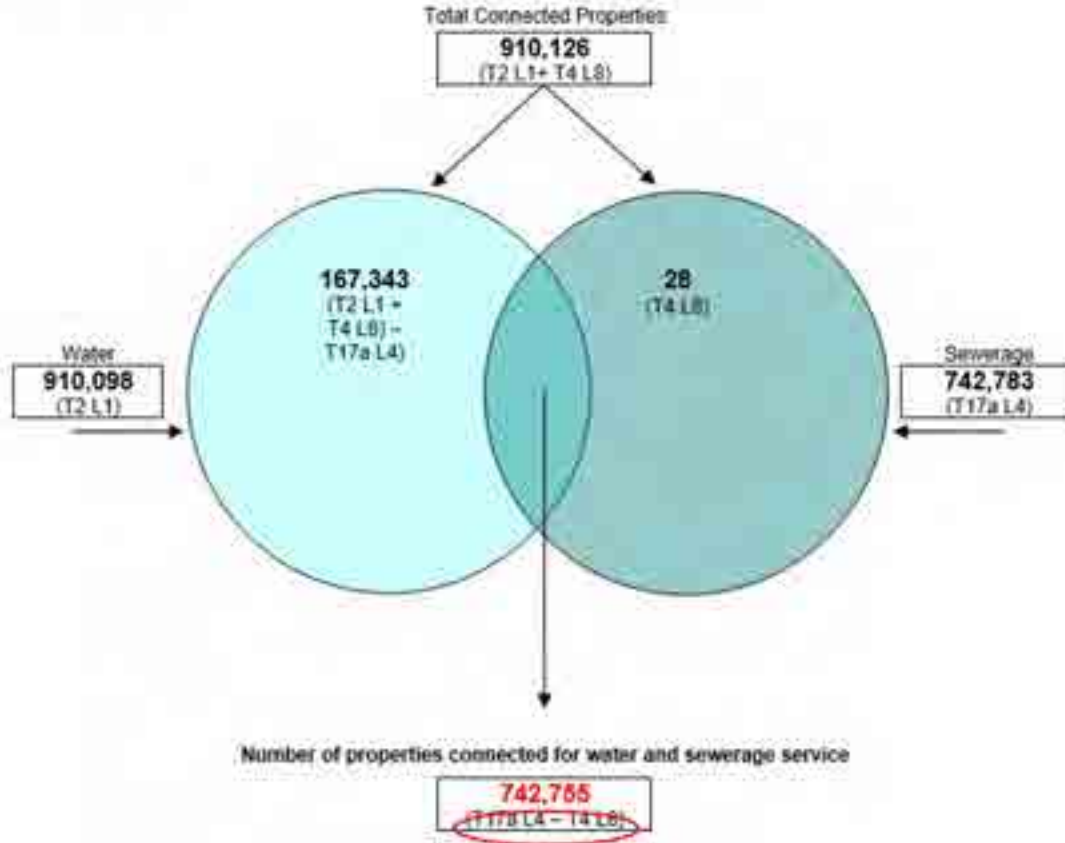
	End March 2023
Total Connected Properties (T2 L1 + T4 L8)	910126
<i>less</i>	
Total Connected Properties for Sewerage (T17a L4)	742783
Total Connected for Water Only	167343

Line 7: Number of Properties Connected for Water and Sewerage Services

The total number of household and non-household properties connected for both water and sewerage services at the end of the reporting year.

This includes properties which are connected but not billed (e.g. temporarily unoccupied) but excludes properties which have been permanently disconnected.

This figure is taken from the Rapid Property Summary for AIR23 and is displayed in the diagram below.



	End March 2023
Number of Properties Connected for Water & Sewerage Services (T17a L4 - T4 L8)	742755

Line 8: Number of Properties Connected for Sewerage Services Only

The total number of household and non-household properties connected for sewerage services only at the end of the reporting year.

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This figure is taken from the Rapid Property Summary for AIR23.

	End March 2023
Domestic sewerage only	10
<i>plus</i>	
Non-domestic sewerage only	18
Total Properties Connected for Sewerage Only	28

Line 6 – Number of Properties Connected for Water Supply Only

AIR22 figure – 166389

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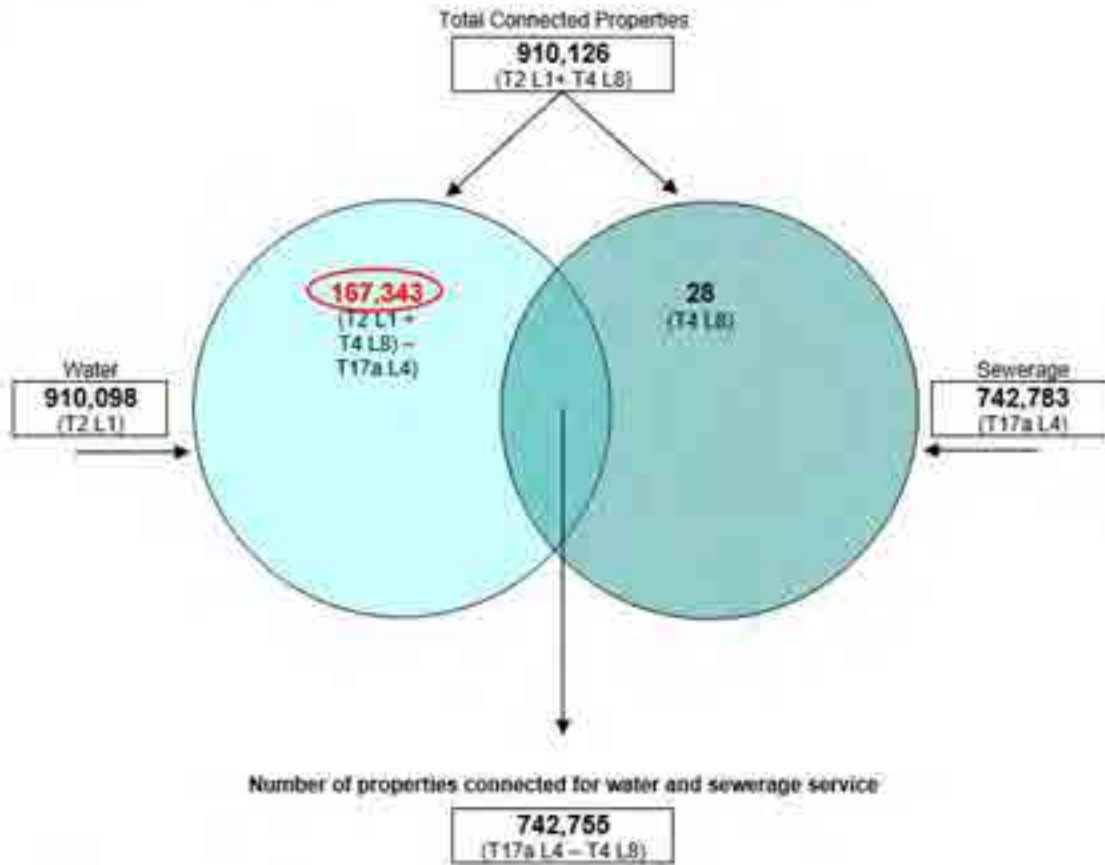
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Therefore:-

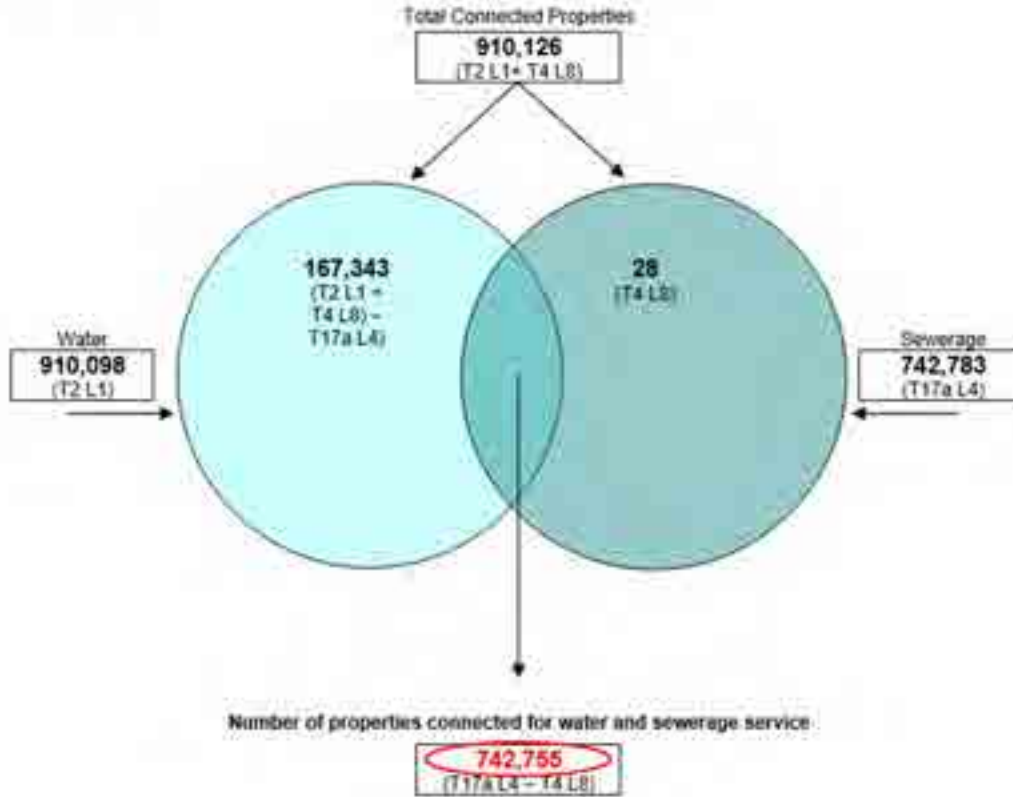
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less	
Total Connected Properties for Sewerage (T17a L4)	742783
Total Connected for Water Only	167343

Line 7: Number of Properties Connected for Water and Sewerage Services

The total number of household and non-household properties connected for both water and sewerage services at the end of the reporting year.

This includes properties which are connected but not billed (e.g. temporarily unoccupied) but excludes properties which have been permanently disconnected.

This figure is taken from the Rapid Property Summary for AIR23 and is displayed in the diagram below.



	End March 2023
Number of Properties Connected for Water & Sewerage Services (T17a L4 - T4 L8)	742755

Line 8: Number of Properties Connected for Sewerage Services Only

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This figure is taken from the Rapid Property Summary for AIR23.

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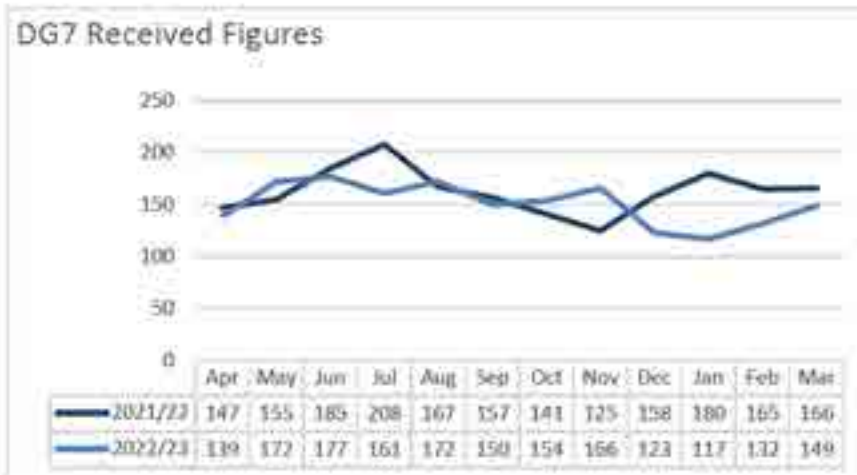
NORTHERN IRELAND WATER LIMITED - ANNUAL INFORMATION RETURN

ANNUAL INFORMATION RETURN - TABLE 5 KEY OUTPUTS
CUSTOMER SERVICE - 2 (TOTAL)

DESCRIPTION	UNITS	DP	1	2	3	4	5	6	7	8	9	10	11	12
			REPORTING YEAR 2015-16 CG	REPORTING YEAR 2016-17 CG	REPORTING YEAR 2017-18 CG	REPORTING YEAR 2018-19 CG	REPORTING YEAR 2019-20 CG	REPORTING YEAR 2020-21 CG	REPORTING YEAR 2021-22 CG	REPORTING YEAR 2022-23 CG	REPORTING YEAR 2023-24 CG	REPORTING YEAR 2024-25 CG	REPORTING YEAR 2025-26 CG	REPORTING YEAR 2026-27 CG
A DG7 RESPONSE TO WRITTEN COMPLAINTS														
1 Total written complaints	nr	0	2,269 B2	2,375 B2	2,274 B2	2,133 B2	1,958 B2	1,885 B2	1,954 B2	1,812 B2				
2 Number dealt with within 10 working days	nr	0	2,266 B2	2,375 B2	2,271 B2	2,133 B2	1,957 B2	1,883 B2	1,954 B2	1,812 B2				
3 Percentage dealt with within 10 working days	%	2	99.87 A1	100.00 A1	99.87 B2	100.00 B2	99.95 B2	99.89 B2	100.00 B2	100.00 B2				
4 Number dealt with in more than 20 working days	nr	0	2 B2	0 B2	3 B2	0 B2	0 B2	1 B2	0 B2	0 B2				
5 Percentage dealt with in more than 20 working days	%	2	0.09 A1	0.00 A1	0.13 B2	0.00 B2	0.00 B2	0.05 B2	0.00 B2	0.00 B2				
B DG8 BILLS FOR METERED CUSTOMERS														
6 Total metered accounts	nr	0	123,763 A1	127,807 A1	128,705 A1	129,387 A1	130,375 A1	130,887 A1	131,590 A1	132,279 A1				
7 Metered accounts excluded from indicator	nr	0	55,875 A1	59,428 A1	60,060 A1	60,542 A1	61,091 A1	61,137 A1	61,100 A1	61,539 A1				
(i) NO. OF CUSTOMERS WITH METERED ACCOUNTS RECEIVING AT LEAST ONE BILL DURING YEAR BASED ON METER READING:														
8 Company readings	nr	0	67,319 A1	68,025 A1	68,400 A1	68,603 A1	68,938 A1	69,147 A1	70,246 A1	70,569 A1				
9 Company or customer readings (for both)	nr	0	67,366 A1	68,051 A1	68,420 A1	68,621 A1	68,958 A1	69,206 A1	70,253 A1	70,574 A1				
(ii) NUMBER OF CUSTOMERS WITH METERED ACCOUNTS RECEIVING:														
10 Estimated bills only	nr	0	426 A1	270 A1	184 A1	203 A1	295 A1	371 A1	196 A1	126 A1				
11 No bills received during the report year	nr	0	96 A1	58 A1	41 A1	72 A1	31 A1	173 A1	41 A1	40 A1				
12 Unread by company for 2 years	nr	0	207 A1	173 A1	90 A1	21 A1	58 A1	65 A1	88 A1	53 A1				
C DG9 TELEPHONE CONTACT														
13 Total calls received on customer contact lines	nr	0	210,487 A2	217,023 A2	212,095 A2	215,011 A2	197,184 A2	188,658 A2	190,719 A2	175,475 A2				
14 All lines busy	nr	0	159 A2	63 A2	18 A2	29 A2	44 A2	76 A2	30 A2	0 A2				
15 Total of calls not abandoned	nr	0	209,284 A2	216,015 A2	211,061 A2	213,835 A2	196,289 A2	184,198 A2	184,024 A2	166,814 A2				
16 Call Handling Satisfaction - not used	nr	2	4.59 A1											
17 Total telephone complaints	nr	0	61,316 A2	62,896 A2	57,940 A2	59,686 A2	53,210 A2	56,852 A2	44,799 A2	34,198 A2				
D SPECIAL ASSISTANCE REGISTER														
18 Customers on the special assistance register	nr	0	3,163 A2	2,017 A1	2,096 A1	2,201 A2	2,246 A2	2,476 A2	2,694 A2	2,822 A2				
E CUSTOMER SATISFACTION MEASURES														
19 Total contacts	nr	0		257,866 A2	250,753 A2	252,844 A2	190,729 A2	182,029 A2	201,170 A2	192,044 A2				
20 Unwanted contacts	nr	0		110,197 A2	105,964 A2	75,569 A2	67,013 A2	70,204 A2	66,064 A2	57,327 A2				
21 Unwanted contacts as a % of total contacts	%	2												
22 First Point of Contact Resolved (FPOCR)	%	1		66.5 A2	65.8 A2	90.0 A2	90.4 A2	90.4 A2	84.0 A2	84.0 A2				
23 Customer advocacy measure	nr	0		27 A1	31 A1	32 A1	42 A1	42 A1	32 A1	36 A1				
24 Omnibus survey question 1	nr	11		80.3 A1	92.4 A1	81.6 A1	71.7 A1	80.7 A1	79.2 A1	73.7 A1				
25 Omnibus survey question 2	nr	11		11.2 A1	8.2 A1	8.3 A1	7.6 A1	7.4 A1	7.5 A1	7.5 A1				

Table 5 – Customer Service 2**Lines 1-5 - DG7 Received Volumes**

The chart below shows the DG7 received volumes during 21/22 and 22/23.



The chart shows a decrease in the overall volume of written complaints received in 22/23 compared to the previous year; 1,812 in total received in 22/23 compared with a total of 1,954 received in the previous reporting period.

The decrease can in part be attributed to the recovery and resumption of normal services following the COVID-10 global pandemic, which resulted in a higher volumes of complaints being received during 2020/21.

Additionally, in July 2021, there were two incidents; the High Demand incident and a burst main at Dunore Point which resulted in a peak in volumes. No incidents were experienced in July this year, and therefore volumes remained lower throughout July, than in the previous reporting year.

When comparing with average monthly received figures based on the data for the past 3 years, received volumes in 22/23 were above average monthly received figures in 5 of the 12 months.

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
20/21	89	106	140	131	180	171	156	191	165	160	165	231
21/22	147	155	185	208	167	157	141	125	158	180	165	166
22/23	139	172	177	161	172	150	154	166	123	117	132	149
Average	125	144	167	167	173	159	150	161	149	152	154	182

The most notable of the above-average monthly volumes was received in May 2022. Analysis of written complaints received in May 2022 found an increase in Charges & Billing related complaints which would be attributed to the annual unmeasured bill run.

As in previous years, the number of written complaints in the Charges & Billing category was highest, representing 39% of the total received across the reporting period. This represents an 8% decrease compared with 21/22.

As is typical, the complaints in the Charges & Billing category this reporting period stem from a variety of reasons, some of which are summarised below:

- 233 complaints were recorded as being from customers disputing liability for charges.
- 121 complaints were recorded as being about leakage allowances or high consumption.
- 93 complaints were recorded as being from customers requesting an explanation of calculation.

End of Year (Contacts not dealt with at end of year)

Based on data extracted on 16th May 2022, no DG7 contacts received during 22/23 remained open.

Petitions

No DG7 contacts were received which could be described as petitions.

CCNI Written Complaints Assessment

The 8th formal CCNI Written Complaints Assessment process commenced in March 2023. This independent review seeks to identify recommendations for improved complaint handling. Results and any recommendations from this assessment will be agreed in Q1 of 22/23.

E-mail and Faxes

Systems remained in place to ensure that the receipt date of email/fax contacts is recorded as the date they are delivered to the company, with the following working day being recorded as Day 1.

1,642, or 90.62%, of the total DG7 received volume were recorded with a document type of "email".

No DG7 contacts were recorded as having a document type of "fax".

Self-Service Portal

The "Contact Us" section of the online Self Service Portal allows customers to submit complaints on completion of an online form.

The resulting complaints are received as emails and reported as such. The link is as below:
<https://digitalservices.niwater.com/contact-form#Complaint>

Complaints about Contractors

The process which supports the recording of written complaints received directly by PPP concessionaires (or other contractors working on NI Water's behalf) remained in place throughout 22/23.

No complaints of this nature were recorded via this process during the reporting period.

Complaints about HVCH

There were no written complaints recorded as being related to the High Volume Call Handling system.

NI Direct

There were no written complaints received through NI Direct in respect to the company's call centre or field staff responses to flooding incidents.

Telephone Complaints

Complaints received via telephone are reported as DG9 telephone complaints, not DG7. Billing telephone complaints are reported as DG6.

Date of Receipt

Written complaints are date-stamped as per the date of receipt.

Date of Dispatch

The date of dispatch refers to the date on which a response is sent to the customer. The date of dispatch is recorded as the date closed.

Response Time

This is the number of working days between receipt of a contact by Northern Ireland Water up to and including the day of dispatch of a response. For the purpose of this calculation, the day of receipt (provided it is a working day) is counted as day zero and the next working day as day one.

When an email or fax is received after 16:00 it would typically have been scanned, logged and indexed on the next working day.

The reported date of receipt for emails/faxes received outside of normal operating hours is the actual date on which the complaint was delivered to the company. For example, if an email is received on a Saturday, this is recorded as day zero. The next working day (normally the Monday) would be counted as day one. If an email is received on a Sunday, then this is recorded as date of receipt (day zero) and (normally) Monday as day one.

In the previous reporting year, due to COVID-19 restrictions, and in line with Government guidelines, attendance in Capital House for the purposes of scanning was reduced to two days per week. In 2021/22, this increased to 3 working days in Q1 through to Q3 and increased to daily in Q4. As with the previous year, this did not result in any changes to the way in which date of receipt was recorded; the date of receipt recorded matches the actual date of receipt irrespective of when the complaints were scanned.

Substantive Holding Reply

This is defined as a response to a written complaint which advises the customer that Northern Ireland Water needs to undertake additional investigations or other actions before being able to provide a full response. A holding response is considered substantive if it advises the customer what further action needs to be taken in order to fully respond, when this will be done and when they will receive a further communication from Northern Ireland Water.

Complaints remain open until all actions have been completed but will be closed back to the date of the holding response for reporting purposes when said actions have been completed.

When a date by which investigations or further actions will be complete cannot be given, we will give the date by which we will contact the customer again. Holding responses can be issued in writing or provided verbally by telephone.

Repeat Contact

Where a complaint has been responded to and results in a period of correspondence each written contact is treated as, and reported as, a separate complaint.

No complaints have been excluded from DG7 where Northern Ireland Water consider the complaint has been dealt with as far as they are able.

Consumer Council for Northern Ireland (CCNI)

Complaints received in writing via CCNI will be logged as complaints and recorded in DG7 figures. All complaints from CCNI are received in writing by email.

CCNI enquiries and follow-up questions are not recorded as complaints.

Changes to original categorisation

Open contacts can be re-categorised using RapidXtra screen wccm11 (Contact Amendments) and closed contacts can be re-categorised using RapidXtra screen wccm91 (Contact Date Maintenance).

There are a number of stages at which the categorisation of a written contact can be reviewed after it has been scanned, logged & indexed.

Whilst not exhaustive, the main activities during which the categorisation of contacts is regularly checked are:

- Customer Service Officer Review - it is the responsibility of the Customer Service Officer in the Complaints & Executive Mail Team to ensure that each written contact they are handling is closed in line with reporting guidelines. On initial review, they should ensure that the contact has been correctly categorised in line with the DG/Contact definitions. If incorrect, it is their responsibility to ensure that the contact is updated on RapidXtra accordingly. If unsure, they should seek guidance from their line manager.
- Line Management checks – the Complaints & Executive Mail Team Manager & Supervisor perform coaching using sampling of closed contacts. It is the responsibility of the Complaints & Executive Mail Team Manager & Supervisor to ensure that any contacts identified through this process which require re-categorisation are updated on RapidXtra.

Exclusions

11 written customer complaints were excluded from DG7 reporting during 22/23. The reason for the exclusions was because the complaint was either anonymous or regarding the activities of other utilities, which is in line with the Level of Service Methodology.

Confidence Grades

The confidence grades assigned to lines 1-5, as shown below, remain the same as those assigned to the 21/22 performance figures.

1	Total written complaints	B2
2	Number dealt with within 10 working days	B2
3	Percentage dealt with within 10 working days	B2
4	Number dealt with in more than 20 working days	B2
5	Percentage dealt with in more than 20 working days	B2

Lines 6-12 DG8 – Bills for metered customers

99.77% of meters were read and billed based on an 'actual' meter read during 22/23, exceeding the target of 99.00%, and the highest DG8 performance by NIW to date.

The target for 23/24 remains at 99.00%.

DG8 Meters Read and Billed Performance (%)



The graph detailed above provides a monthly profile of the cumulative increase in DG8 reads throughout the course of 22/23. The monthly performance is based on actual meter reads out of the total meter stock base.

Whilst the world has exited Covid-19 restrictions, the 22/23 year was still not without its challenges. Experienced staff took up temporary promotions to assist with project works and the continual difficulties within the job market lead to a number of vacancies being open for an extended period of time. NIW have also had to closely manage its meter stock due to global supply chain issues leading to delays in the delivery of meters. NIW have had to develop extended forecasts for meter requirements to ensure sufficient stock was available for replacement of damaged DG8 meters through the reactive meter maintenance programme.

NIW achieved a read performance in the first 6 months of the year of 99.31% of meters being read and billed, the second year in a row this had been achieved and the highest performance for the first six months of the year. NIW continually manages and monitors the performance throughout the year to achieve these results, this is done through:

- Proactive engagement with customers to obtain access to properties to enable the meter to be read.
- Proactive management of meter maintenance programme to ensure meters where a read could not be obtained were prioritised.
- Proactive identification of in month new meter uploads which are required to be read and billed.
- Skipped meters were proactively investigated to resolve outstanding issues.
- Proactive case management of historical skipped meters to resolve complex skips.

NIW have continues to roll-out AMR meters as standard on all new meter installations and replacement jobs with circa 18,000 AMR meters currently installed in the ground. These meters carry significant benefits over dumb meters:

- Helping to reduce Health and Safety risks with reading meters.
- Reducing skips from access issues as meters can be read without the need to enter the property.
- Allow drive-by reading to improve read efficiency.
- Capture and store 30min consumption data for up to 6 months, which can help with resolving customer disputes.

NIW continues its SMART meter and Network trial with a Key Account Customer, which continues to help us to assess the strengths/weaknesses of the various technologies trialled within the pilot study. Whilst also helping to understand the financial implications of adopting a SMART meter Network.

NIW continues engagement with suppliers and the industry to further understand what future technology trends are emerging and how NIW can avail of them within the budgetary constraints.

NIW have initiated a retender process for the supply of water meters, this is likely to be completed in quarter one of the 23/24 year, the tender includes SMART technology options if NIW choose to expand on the existing trial.

Billing Policy

Frequency of Bill Issue:

- Household properties – the Company do not bill household meters at present.
- Non-household – the Company aim to read twice a year and bill twice yearly.
- Large non-household users – the Company aim to read and bill monthly.

Customer Reads

The Company encourages our customers to take readings themselves so that they are aware of their usage. The company continues to insert a message on bills and recovery envelopes to remind customers of the importance checking consumption by regular meter reading where possible. Customer reads can be submitted for billing purposes by using the Self-serve on-line facility available on our website, email or by calling our billing line.

Exclusions

Based on data extracted on 31st March 2023 from RapidXtra:

- 61,539 Meters were excluded in 22/23.

The company can exclude any unusual accounts or unusual circumstances that complicate the measure. The following are excluded from the indicators:

- Charged on another basis (not metered consumption)
- Retain for Review meters
- Trade-effluent meters
- DRD or NIW meters
- Fire supplies
- Properties occupied continuously for less than six months
- Complex accounts – Including combination meters i.e. the 'low-flow' element is excluded.
- Void properties

The table below illustrates the numerical breakdown and reason for Meters Excluded in 22/23:

Reason for Exclusion	Count of Exclusions	% of total Exclusions
Charged on another basis	58,671	95.34%
New Property	248	0.40%
Occupied < 181 consecutive days	70	0.11%
Void Property/No Occupier	2,550	4.14%
Grand Total	61,539	100%

For 22/23 the total meters excluded has increased by 439 compared to the total exclusion reported in 21/22.

Confidence Grades

The confidence grade is assigned based on methodology used to extract and report the DG8 performance. The information is extracted and summarised from RapidXtra via automated system reports. The 'DG8 Summary Report' does not require any manual manipulation. RapidXtra automatically categories each account based on its status using the most current and up to date data.

The confidence grades assigned to lines 6-12, as shown below, remain the same as those assigned to the 2019/20 performance figures:

6	Total Meter Accounts	A1
7	Metered accounts excluded from indicator	A1
8	Company readings	A1
9	Company or customer readings (or both)	A1
10	Estimated bills only	A1
11	No bills received during the report year	A1
12	Unread by company for 2 years	A1

Lines 13 – 17- DG9 Telephone Contact

DG9 Introduction

During the reporting year a total of 175,475 calls were made to the Public Advertised Company telephone numbers.

Call volumes for 2022/23 were 15,244 lower than the previous reporting year 2021/22 (190,719), with February (12,049) receiving the lowest call volumes YTD. There are a few reasons for the reduction in call volumes from 2021/22 to 2022/23:

- It was a relatively quiet year in terms of major incidents. There was only one Category 1 incident in 2022/23 which resulted in only an additional 800 calls;
- Web-chat extended hours from 8am to 11pm since July 2022;
- Customer journey reviews and system improvements undertaken during the year.

HVCA has been renamed HVCH (High Volume Call Handling) from September 2019 due to a new company providing the system.

The deployment of a High Volume Call Handling (HVCH) solution in NI Water is unique in the water industry, providing an enhanced customer experience and improved incident management when compared to other water companies in UK and on a par with other

utilities in Northern Ireland i.e. NIE Networks. HVCH was available to handle overflow calls for customers reporting faults on the Waterline.

The HVCH system is presented in Agent First Mode, with the exception of 'No Water' calls which have been set to HVCH first since September 2020. The caller is presented with the menu selection and depending on the option selected and if a CRC agent available, passed to a CRC call Agent. If no Agents are available then the caller will enter into the HVCH call routing plan to have their issue logged. All CCR customers will go straight to Warm Voice (Agent First) and will not be directed through HVCH.

IVR Platform

An IVR platform was introduced to provide customers with another channel of choice, the IVR platform is available 24/7 and supports the reduction of warm voice calls into the Customer Relation Centre.

IVR is a technology that automates and simplifies interactions with incoming customer calls. In doing this, IVR provides a conversation, which can be either pre-recorded or generated audio that assists, directs, and/or guides customers automatically without the need to talk to an agent. Within these interactions customers are able to communicate by using either the dial pad or speech recognition.

The areas that the IVR service include:

- Switchboard
- Billing and debt line
- Septic tank desludge request

The IVR platform is not set to Agent first which means all calls will hit the Virgin switch first and then be directed to the IVR platform. If completed successfully on the IVR, the call will never hit the Avaya switch and will not be reported in Avaya CMS. However, the Billing & Debt line and Septic Tank IVR are linked to the Billing Enquiry and will be reported using the CIRBUS Voice platform.

The switchboard IVR went live on the 20th November 2018, this has not impacted call volumes as switchboard contacts can be excluded if proven to be genuine – if the call went directly to the person required these do not need to be counted in line with current guidance. If the call goes to CRC then they will be counted via the Avaya switch (Avaya CMS) and any genuine contacts will be excluded as per the agreed process via the switchboard customer references.

The Billing IVR and the Septic Tank IVR call volumes are contained in the table below. There has been little success with the voice recognition software deployed on the IVR Switchboard and as a result it has been turned off since 31st August 2022. These calls are now on 'Agent First' mode and are directed to warm voice. The figures in the table represent the calls received from 1st April 2022 to 31st August 2022.

IVR Calls	FY22/23
IVR - Septic Tank	4,373
IVR - Billing	16,190
IVR Switchboard	4,791

Line 14 - All Lines Busy

There were 0 instances of 'All lines busy' during the reporting year 2022/23. A decrease of 30 instances compared with the number received during 2021/22.

NI Water followed government guidance to work from home where they could during the pandemic. Call centre agents were also working from home, as a result changes were made to call routing and the Cirrus Platform was used to report on telephony as Call Media was not compatible. From the 1st September 2022 calls have been routed through the Avaya Telephony Platform and Avaya CMS have been used for reporting.

Lines 15 – Calls Abandoned

There were 8,661 calls abandoned on the Cirrus and Avaya CMS systems during the year leading to a reportable Company performance of 95.06% of 'calls not abandoned'. NI Water enhanced their Social Media offerings from 8am to 11pm 7 days a week from Nov-21 and introduced webchat as an alternative channel of choice for customers (8am to 11pm 7 days a week). To facilitate this additional offerings the 'calls not abandoned' contractual KPI was reduced to 95%.

All calls abandoned on HVCH are now classified as answered due to agreement with the Regulator and CCNI. However, for monthly Business and annual Regulatory reporting purposes all calls handled by HVCH continue to be analysed and reported as answered or abandoned using the agreed hang up location methodology.

NI Water is able to classify each hang up location as either 'answered' if the caller has reached a point in the call flow at which they can hear a salient message or 'abandoned' as HVCH has 226 distinct hang up locations allowing for detailed analysis of where the customer call ended and what messages the customer was presented with.

Line 17 - Telephone Complaints

Telephone complaints cover any telephone call from a customer or a customer's representative (e.g. Citizens Advice Bureau, solicitor) alleging that an action or inaction of the Company, or a service or lack of service provided by NI Water or agent/contractor has fallen below his/her expectation.

General statements of complaint are also counted. Customers may complain unfairly or unjustifiably; nevertheless, such calls are classed as complaints. Some complaints may be frivolous or vexatious, nevertheless these are reported.

As a general policy, the Company records telephone calls about the following water service issues as complaints: no water, lack of pressure, leaks, taste and odour, discoloration and hard water (except for simple enquires e.g. dishwasher settings). Telephone calls about the following wastewater services are also recorded as complaints: sewer flooding other than those received through NI Direct/blockages, collapsed sewers/manholes, smells from sewage treatment works/pumping stations and flies from sewage treatment works.

Telephone complaint volumes decreased to 34,198 compared to 44,799 received during 2021/22 reporting period. As per Line 13 – 17 DG9 Telephone Contact overall call volumes have reduced in 2022/23 which could lead to a reduction in the number of telephone complaints.

Line 18 – Customers on the Customer Care Register

The Customer Care Register offers a range of free additional services to customers who are older, have a disability, a serious medical condition or require extra help when experiencing an interruption to their water supply.

A bespoke Power BI report has been created in conjunction with NI Water code of Practice - "Priority Services for Domestic Services" to report on CCR Customers. The report has been created with predefined filters to only return customers registered against the special needs listed below:

Special Needs Code	Need Description
01	Require Braille - Blind/partially sighted
02	Require Audio - Blind/partially sighted
03	Deaf
04	Vocally Impaired
06	Large Print Bill - Learning/Reading difficulties
07	Dialysis patient
08	Vulnerable
11	Nursing Home

Customers who are registered for multiple medical conditions will only be reported on once, except for when the customer is a Nursing Home or Hospice.

At the end of 2022/23 reporting year 2,822 properties were registered on the Customer Care Register, this has increased slightly compared to the reported 2,694 for 2021/22.

Echo currently carry out a twice yearly review and contact with CCR customers. The first contact is by telephone which commences over the summer months. This call is a courtesy call and allows Echo to reconfirm contact details.

The second contact is the annual Newsletter (embedded below) which is sent out to all CCR Customers in November. The annual Newsletter reminds customers of the service available and other useful telephone numbers such as NIE Networks, Quick Check 101 etc. It also advises of the expectation of the delivery of bottled water on preparation for Winter. It is worth noting that requests to be added or removed from the register can be received following the distribution of this newsletter.



CCR letter Nov
2022v1.0FACTSHEET

Customers will only be removed from the CCR register on the request of the customer or family member.

Customer Satisfaction Measures

Lines 19 to 25 – Total Contacts and Unwanted Contacts

Line 19 – Total Contacts

Total contacts refers to the number of Telephone (Billing) and Operational telephone contacts the company has received from customers during the reporting year 2022/23. During the reporting year telephone contacts were received. The figure is obtained from

the All Received CorVu report and is calculated using the Original CMS contacts logged within Rapid.

Line 20 – Unwanted Contacts

During the reporting year 2022/23 a total of 57,327 unwanted contacts were received. The target for 22/23 was 65,200 unwanted contacts which has been met.

An unwanted contact is a contact received from a customer that is 'unwanted' from the customer's point of view. This includes a contact about an event or action that has caused the customer unnecessary aggravation (however mild). This is determined by the subject matter of the contact.

The table below illustrates the breakdown of unwanted contacts across the 2022/23 financial year:

Month	Unwanted Contacts
Apr	4,547
May	4,885
Jun	5,028
Jul	5,020
Aug	5,062
Sep	4,229
Oct	4,357
Nov	4,736
Dec	5,396
Jan	4,736
Feb	4,152
Mar	5,178
Grand Total	57,327

Based on the total unwanted telephone contacts received by the company, 21,918 (38%) are relating to Sewerage Services and 28,779 (50%) are relating to Water Services.

The top Sewerage Service unwanted contact for 2022/23 is '*Blocked Sewer Inc Cleanup & Disinfect*', with a total of 12,437 (21.7%) of unwanted customer contacts.

The top Water Service unwanted contact for 2022/23 is '*No Water Complaint*', with a total of 15,869 (27.4%) of unwanted customer contacts.

There is a reduction in Unwanted Telephone Contacts from AIR 22 due to AIR 23 being a relatively quiet year in terms of incidents.

There were 2 anomalies noted in the data for 22/23, this was higher than 21/22 where there were 0 anomalies.

Line 22 – First Point of Contact

During the reporting year the First Point of Contact resolution (FPOCR) was 84% which meets the target for 22/23 which was 84%. This score is consistent to 2021/22. In PC21 the window for FPOCR increased from 90 days to 180 days, meaning there was double the amount of time for a repeat contact to be recorded.

The table below illustrates the breakdown of FPOCR by month across the 2022/23 Financial Year.

Month	First Point of Contact Resolution (FPOCR)
Apr	85%
May	84%
Jun	85%
Jul	85%
Aug	85%
Sep	85%
Oct	83%
Nov	85%
Dec	84%
Jan	85%
Feb	85%
Mar	82%
Average	84%

When a contact requires an action and this action is completed and there has been no other contact from the same property on the same issue within a 180 day period (90 days before or 90 days after) then it shall be counted as 'First Point of Contact Resolution'.

First point of contact resolution is reported as a percentage of contacts resolved at FPOC against the number of issues.



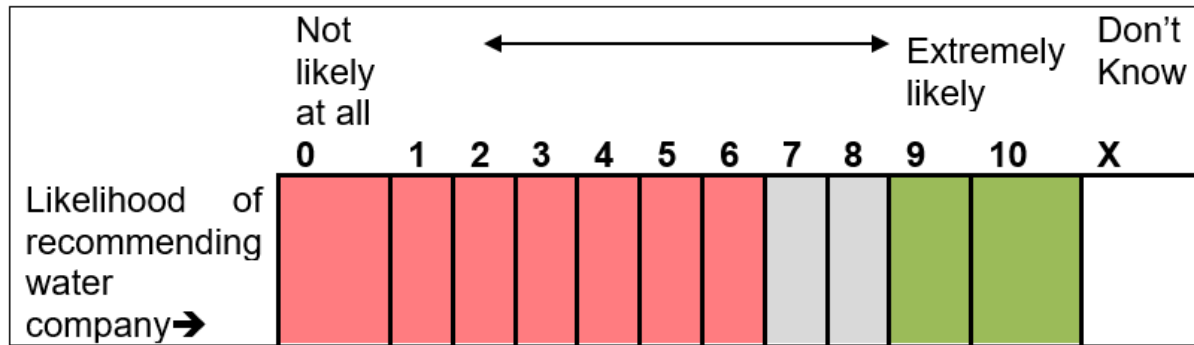
Line 23 – Customer Advocacy measure

Customer advocacy is an annual satisfaction score which is assessed by Northern Ireland Water's Voice of the Customer service in which surveys are conducted by Watermelon, an independent Customer Experience and Insights specialist.

The objective of the surveys is to capture the views of those customers who have had dealings with the company, not only through the main contact centre but to any part of the business.

Customers are asked "Based on your recent experience with us, how likely are you to recommend NI Water? Please respond 0 for very unlikely up to 10 for very likely".

The score is calculated using Net Promoter Score methodology based on results from the previous question.



Customer Advocacy is calculated: Promoter % - Detractor %

NPS Calculation document embedded below:



NPS Calculation - AIR
21.docx

The survey is based on resolved contacts (identified by either completed Work Orders, or issues which could be resolved at the time of contact and logged accordingly). It encompasses customers contacting us from all available channels (telephone, written, online) in relation to all functional areas of the business (Water services, Wastewater services, Call Centre and Metering/Billing). Every morning Watermelon provides the latest completed surveys via SFTP into NI Water's data warehouse where the master set of surveys are stored.

In 2022/23 NIW achieved a Customer Advocacy score of 36 which is below the PC21 target of 42. This is an increase of +4 from 2021/22. This increase in NPS can be attributed to a number of customer initiates and customer journey reviews undertaken during the year which has improved the customer experience.

Line 24 Omnibus survey question 1

Ipsos MORI is an independent market research company, who carry out customer surveys on behalf of many other clients, including Regulators, Councils and Utilities.

The objective of the research is to survey a sample of domestic and non-domestic customers who may or may not have contacted NI Water, to confirm their level of customer satisfaction and ascertain if there is any correlation in the level of satisfaction between customers who contact NI Water and those who don't.

The survey has to be sufficiently robust and statistically significant to enable benchmarking within multiple markets. The score is calculated from an average of overall satisfaction with the following statement:

"I am happy with the service I receive from NI Water."

The Omnibus survey is based on a sample of 1600 domestic consumers and 502 non-domestic consumers that may have had direct or no contact with NI Water to request a service or make a complaint. The survey is carried out once a year, the data for the survey was collected between 13th February and 3rd March 2023.

Each domestic survey consists of a freshly drawn sample of 1600 people, aged 16 and over (with each interview representing one household). The Domestic interviews were completed through the Ipsos MORI online platform KnowledgePanel. Panellists to the

KnowledgePanel are recruited via a random probability unclustered address-based sampling method, meaning that every household in the UK has a known chance of being selected to join the panel. Letters are sent to selected addresses in the UK (using the Postcode Address File) inviting them to become members of the panel. Members of the public who are digitally excluded are able to register to the Knowledge Panel either by post or by telephone, and are given a tablet, an email address, and basic internet access which allows them to complete surveys online.

The above detail is an indication of how Ipsos MORI use this KnowledgePanel nationwide, however for the purpose of our survey only panellists from Northern Ireland and in effect NI Water Customers were used. In Northern Ireland 1,600 panellists were available for this research and achieved 985 responses.

Each non-domestic survey is conducted via Computer Assisted Telephone Interviewing (CATI). The survey is derived from a random sample of businesses in Northern Ireland, with quotas applied to ensure that the survey mirrors the profile of the Northern Ireland business community insofar as this is possible, building quota requirements by region with a view to ensuring maximum geographical representativeness. Given that the data may be subject to media and public scrutiny the sample is controlled by industry sector and number of employees to ensure broad representativeness, although it is possible to add further area quota controls to the overall sample stratification. Throughout the course of the fieldwork, geographic analysis would be monitored, to ensure representation is being achieved.

Consumers are asked to what extent do you agree or disagree with the following statement?
“I am happy with the service I receive from NI Water.”

Strongly agree.....	1
Tend to agree	2
Neither agree nor disagree.....	3
Tend to disagree.....	4
Strongly disagree	5
Don't know	6

The level of satisfaction reported for 2022/23 has decreased from the level of satisfaction reported in 2021/22. The domestic score has reduced from 81 in 2021/22 to 72 in 2022/23 with the non-domestic score increasing from 76 in 2021/22 to 77 in 2022/23. Some reasons for the reduction in score include:

- NI Water does not have control over the order in which the survey questions are asked within the Omnibus survey. There is potential for a previous question asked to impact the response given to the statement above.
- A perception of poor infrastructure and the disposal of raw sewage into water courses, rivers and the sea are cited by some domestic customers as reasons for their dissatisfaction. These reports have been in the media and are beyond NI Water's control.
- It should be noted that these reasons will also apply to the reduction in the domestic advocacy score in Line 25.

As per table below, the overall score achieved was 73.7%

	AIR23		
	Nr	Score	Total / Av
Domestic	985	72	70,920
Non-domestic	502	77	38,654
Total / Average	1487		73.7%

Line 25 Omnibus survey question 2

Ipsos MORI is an independent market research company, who carry out customer surveys on behalf of many other clients, including Regulators, Councils and Utilities.

The objective of the research is to survey a sample of domestic and non-domestic customers who may or may not have contacted NI Water, to confirm their level of customer satisfaction and ascertain if there is any correlation in the level of satisfaction between customers who contact NI Water and those who don't.

The survey has to be sufficiently robust and statistically significant to enable benchmarking within multiple markets.

The score is calculated using Net Promoter Score methodology based on results from the following statement; if people could choose their water company how likely would you be to recommend your water company to a friend or colleague where 1 is 'not at all likely to recommend' and 10 is 'extremely likely to recommend'

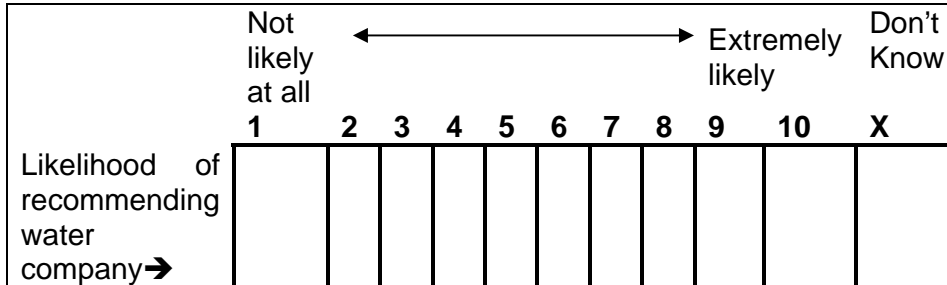
The Omnibus survey is based on a sample of 1600 domestic consumers and 502 non-domestic consumers that may have had direct or no contact with NI Water to request a service or make a complaint. The survey is carried out once a year, the data for the survey was collected between the 13th February and 3rd March 2023.

Each domestic survey consists of a freshly drawn sample of 1600 people, aged 16 and over (with each interview representing one household). The Domestic interviews were completed through the Ipsos MORI online platform KnowledgePanel. Panellists to the KnowledgePanel are recruited via a random probability unclustered address-based sampling method, meaning that every household in the UK has a known chance of being selected to join the panel. Letters are sent to selected addresses in the UK (using the Postcode Address File) inviting them to become members of the panel. Members of the public who are digitally excluded are able to register to the Knowledge Panel either by post or by telephone, and are given a tablet, an email address, and basic internet access which allows them to complete surveys online.

The above detail is an indication of how Ipsos MORI use this Knowledge Panel nationwide, however for the purpose of our survey only panellists from Northern Ireland and in effect NI Water Customers were used. In Northern Ireland 1,600 panellists were available for this research and achieved 985 responses.

Each non-domestic survey is conducted via Computer Assisted Telephone Interviewing (CATI). The survey is derived from a random sample of businesses in Northern Ireland, with quotas applied to ensure that the survey mirrors the profile of the Northern Ireland business community insofar as this is possible, building quota requirements by region with a view to ensuring maximum geographical representativeness. Given that the data may be subject to media and public scrutiny the sample is controlled by industry sector and number of employees to ensure broad representativeness, although it is possible to add further area quota controls to the overall sample stratification. Throughout the course of the fieldwork, geographic analysis would be monitored, to ensure representation is being achieved.

The score is calculated using Net Promoter Score methodology based on results from the following statement; if people could choose their water company how likely would you be to recommend your water company to a friend or colleague where 1 is 'not at all likely to recommend' and 10 is 'extremely likely to recommend'



Advocacy across domestic customers has reduced from 66% in 2021/22 to 62% in 2022/23 which correlates with the reduction in domestic customers' satisfaction detailed in Line 24. Non-domestic advocacy has remained the same as 2021/22 at 68%. Overall score has remained consistent with 2021/22 score at 7.5% in 2022/23.

As per table below, the overall score achieved was 7.5.

	AIR23		
	Nr	Score	Total / Av
Domestic	985	7.43	7,319
Non-domestic	502	7.55	3,790
Total / Average	1487		7.5%

Confidence Grades

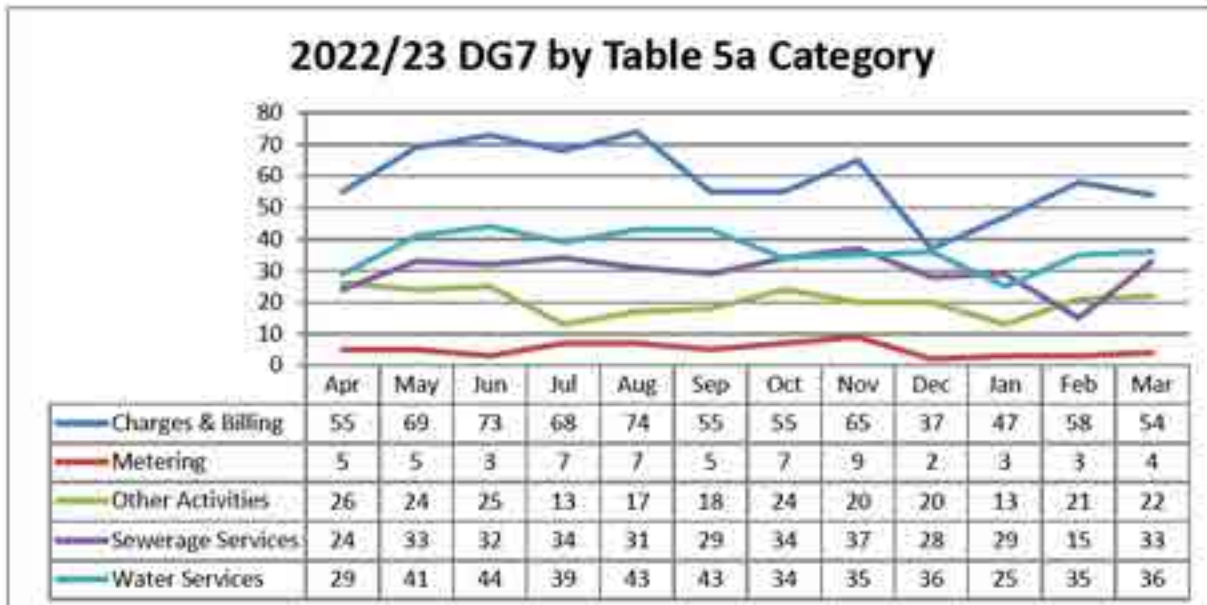
Call volume data is derived using a combination of telephony systems, the HVCH system for automated calls, Cirrus and Avaya CMS that draws information from the Avaya system for agent handled calls and the IVR platform for calls linked to the Billing Enquiry lines.

As per methodology, the process of reconciliation between the telephony systems is largely manual, as calls transferring from Avaya CMS are deemed to be received in HVCH; however the confidence grade assigned to the data remains at 'A2', as per the AIR guidance.

Customer Satisfaction retains the confidence grade of 'A1' as it is conducted independently and the results are provided to NI Water by Ipsos MORI. In relation to the change in methodology for the Omnibus survey (changing from face to face interviews to KnowledgePanel) we had assurances from Ipsos MORI that whilst the method in which the responses were received from Domestic customers, there were no fundamental changes to how the data was reviewed and scored and therefore the confidence grades have remained the same.

Table 5a – DG7 Response to Written Complaints**DG7 Received Annual Profile & Explanation**

The volume of DG7 complaints received each month during 22/23 by type is shown in the chart below.



In line with previous years, those falling into the Charges & Billing Category remain the principal written complaint type. In 22/23, 39% of the total written complaints received fall into this category. This represents an 8% decrease in comparison to the previous reporting period.

The reduction in Charges & Billing complaints is more representative of typical billing volumes and reflects the recovery, post-pandemic.

There was an increase in Charges & Billing complaints in May 2022, which would have coincided with the annual unmeasured bill run, and they remained high until August 2022. There was a secondary, smaller peak in November 2022. No specific drivers identified; however, this could have been related to the release of the revised Codes of Practice, which were launched in October, and may have generated additional traffic. This smaller peak was followed by a sharp reduction in December. This reduction is due to a number of businesses being closed over the Christmas period and we would typically expect volumes to be lower.

Volumes for Water Services peaked in June 2022 and remained moderately high until the end of September. This is attributed to the warmer weather during the Summer period which typically sees an increase in demand leading to an increase in 'No Water' or 'Low Pressure' complaints. There was a 'High Demand' incident in August 2022 as a result of a period of prolonged warm weather.

In December 2022, we experienced a 'Freeze/Thaw' incident as a result of the prolonged sub-zero temperatures. Despite this, there was no peak in volumes for Water Service complaints. Volumes for December 2022 and January 2023 were the same or lower, for the same period last year. This was in part due to the steps that were put in place to mitigate the customer impact and the communications that were issued at the time.

Volumes for Sewerage Services peaked in November 2022, which was due to an extended period of extremely wet weather, which caused an increase in sewer flooding complaints.

There were no other key drivers or themes linked to billing or operational complaints identified during the reporting period.

Second Stage Complaints

Systems remained in place to enable the reporting of complaints escalated to second stage review throughout 22/23.

It should be noted that the associated data does not highlight instances of the same customers sending further complaints on the same issue following a second stage complaint. Second stage complaints have not been analysed to determine whether they would be deemed upheld or unjustified by the Company.

Sampling audits were performed throughout the year to ensure accuracy of categorisation.

Other Customer Measures

Monitoring systems remain in place to allow reporting of:

- the number and frequency of repeat complaints; and
- the number and frequency of holding responses.

Whilst there is no data line to report on repeat complaints, those complaints reported as having been escalated to second stage review could be interpreted as representing the number of repeat written complaints.

Monitoring systems have been in place throughout the reporting period to support reporting on the number holding responses issued throughout 22/23.

System-based report data was used to derive the number of holding responses issued between 01/04/22 and 31/03/23.

The figure reported in Line 14 is the total recorded number of holding responses issued to customers during 22/23 owing to pending investigations linked to open DG7 contacts which were received in 22/23. It does not include holding responses issued within 22/23 in relation to DG7 contacts received in the previous reporting year.

The reported figure does not represent the number of unique DG7 contacts for which one or more holding response was issued.

In cases where the investigations were ongoing by the expiry date of the initial holding response, a further holding response will have been issued.

NORTHERN IRELAND WATER LIMITED - ANNUAL INFORMATION RETURN

ANNUAL INFORMATION RETURN - TABLE 6A BAD DEBT
 OUTSTANDING REVENUE AND BREAKDOWN OF CUSTOMER SERVICES OPERATING EXPENDITURE (TOTAL)

DESCRIPTION	UNITS	DP	1	2	3	4	5	6	7	8	9	10	11	12
			REPORTING YEAR 2015-16 CG	REPORTING YEAR 2016-17 CG	REPORTING YEAR 2017-18 CG	REPORTING YEAR 2018-19 CG	REPORTING YEAR 2019-20 CG	REPORTING YEAR 2020-21 CG	REPORTING YEAR 2021-22 CG	REPORTING YEAR 2022-23 CG	REPORTING YEAR 2023-24 CG	REPORTING YEAR 2024-25 CG	REPORTING YEAR 2025-26 CG	REPORTING YEAR 2026-27 CG
A REVENUE OUTSTANDING - MEASURED HOUSEHOLDS														
Lines 1 to 14 not used														
B REVENUE OUTSTANDING - UNMEASURED HOUSEHOLDS														
Lines 15 to 28 not used														
C REVENUE OUTSTANDING - MEASURED NON HOUSEHOLDS														
29 Total revenue outstanding < 48 months (measured non households)	Em	3	7,220 A2	7,305 A2	7,009 A2	6,112 A2	5,496 A2	6,175 A2	6,139 A2	6,236 A2				
30 Number of measured non households with outstanding revenue < 48 months	nr	0	17,091 A2	11,715 A2	11,517 A2	9,781 A2	11,102 A2	12,402 A2	13,156 A2	7,819 A2				
31 Revenue outstanding < 3 months (measured non households)	Em	3	5,530 A2	5,376 A2	5,611 A2	5,136 A2	4,862 A2	4,553 A2	5,520 A2	5,656 A2				
32 Number of measured non households with outstanding revenue < 3 months	nr	0	10,405 A2	7,992 A2	8,576 A2	7,310 A2	8,379 A2	8,645 A2	10,450 A2	7,238 A2				
33 Revenue outstanding 3 - 12 months (measured non households)	Em	3	0,758 A2	1,100 A2	0,629 A2	0,454 A2	0,359 A2	0,931 A2	0,214 A2	0,508 A2				
34 Number of measured non households with outstanding revenue 3 - 12 months	nr	0	4,889 A2	2,368 A2	1,906 A2	1,607 A2	1,762 A2	2,721 A2	1,865 A2	259 A2				
35 Revenue outstanding 12 - 24 months (measured non households)	Em	3	0,436 A2	0,446 A2	0,362 A2	0,163 A2	0,227 A2	0,493 A2	0,303 A2	0,021 A2				
36 Number of measured non households with outstanding revenue 12 - 24 months	nr	0	1,142 A2	322 A2	737 A2	573 A2	542 A2	915 A2	552 A2	242 A2				
37 Revenue outstanding 24 - 36 months (measured non households)	Em	3	0,497 A2	0,383 A2	0,407 A2	0,359 A2	0,048 A2	0,198 A2	0,102 A2	0,012 A2				
38 Number of measured non households with outstanding revenue 24 - 36 months	nr	0	656 A2	433 A2	298 A2	291 A2	319 A2	221 A2	288 A2	78 A2				
39 Revenue outstanding 36 - 48 months (measured non households)	Em	3	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000 A2				
40 Number of measured non households with outstanding revenue 36 - 48 months	nr	0	0	0	0	0	0	0	0	0 A2				
41 Revenue outstanding > 48 months (measured non households)	Em	3	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000 A2				
42 Number of measured non households with outstanding revenue > 48 months	nr	0	0	0	0	0	0	0	0	0 A2				
D REVENUE OUTSTANDING - UNMEASURED NON HOUSEHOLDS														
43 Total revenue outstanding < 48 months (unmeasured non households)	Em	3	2,604 A2	2,647 A2	2,600 A2	2,650 A2	2,870 A2	3,016 A2	3,338 A2	0,356 A2				
44 Number of unmeasured non households with outstanding revenue < 48 months	nr	0	9,664 A2	8,881 A2	8,678 A2	8,262 A2	8,974 A2	8,512 A2	9,573 A2	328 A2				
45 Revenue outstanding < 3 months (unmeasured non households)	Em	3	2,282 A2	2,351 A2	1,257,000 A2	2,237 A2	2,552 A2	2,550 A2	2,881 A2	0,000 A2				
46 Number of unmeasured non households with outstanding revenue < 3 months	nr	0	8,224 A2	8,102 A2	8,056 A2	7,650 A2	8,160 A2	7,236 A2	8,429 A2	80 A2				
47 Revenue outstanding 3 - 12 months (unmeasured non households)	Em	3	0,154 A2	0,132 A2	0,203 A2	0,142 A2	0,085 A2	0,157 A2	0,209 A2	0,048 A2				
48 Number of unmeasured non households with outstanding revenue 3 - 12 months	nr	0	190 A2	256 A2	160 A2	177 A2	217 A2	443 A2	362 A2	142 A2				
49 Revenue outstanding 12-24 months (unmeasured non households)	Em	3	0,113 A2	0,116 A2	0,126 A2	0,165 A2	0,170 A2	0,193 A2	0,197 A2	0,248 A2				
50 Number unmeasured non households with outstanding revenue 12 - 24 months	nr	0	662 A2	366 A2	326 A2	316 A2	435 A2	646 A2	398 A2	129 A2				
51 Revenue outstanding 24-36 months (unmeasured non households)	Em	3	0,055 A2	0,048 A2	0,065 A2	0,108 A2	0,063 A2	0,116 A2	0,251 A2	0,056 A2				
52 Number of unmeasured non households with outstanding revenue 24 - 36 months	nr	0	588 A2	157 A2	137 A2	119 A2	162 A2	187 A2	384 A2	-23 A2				
53 Revenue outstanding 36 - 48 months (unmeasured non households)	Em	3	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000 A2				
54 Number of unmeasured non households with outstanding revenue 36 - 48 months	nr	0	0	0	0	0	0	0	0	0 A2				
55 Revenue outstanding > 48 months (unmeasured non households)	Em	3	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000 A2				
56 Number of unmeasured non households with outstanding revenue > 48 months	nr	0	0	0	0	0	0	0	0	0 A2				
E REVENUE WRITTEN OFF														
57 Amount of revenue written off from measured households	Em	3												
57a Amount of revenue written off from measured non-households	Em	3	1,237 A2	0,341 A2	0,474 A2	0,442 A2	0,290 A2	0,501 A2	0,229 A2	0,249 A2				
58 Amount of revenue written off from unmeasured households	Em	3												
58a Amount of revenue written off from unmeasured non-households	Em	3	0,083 A2	0,045 A2	0,056 A2	0,051 A2	0,042 A2	0,065 A2	0,046 A2	0,040 A2				
F CUSTOMER SERVICES OPERATING EXPENDITURE														
59 General customer services operating expenditure Total	Em	3	6,337 A2	6,898 A2	6,453 A2	6,806 A2	8,014 A2	8,183 A2	9,214 A2	9,978 A2				
i Employment costs	Em	3	3,501 A2	3,972 A2	3,933 A2	4,198 A2	4,858 A2	5,154 A2	5,528 A2	5,766 A2				
ii Hire and contracted costs	Em	3	3,018 A2	2,876 A2	2,593 A2	2,770 A2	3,142 A2	2,892 A2	3,522 A2	4,221 A2				
iii Other	Em	3	0,738 A2	0,985 A2	0,951 A2	0,908 A2	1,040 A2	1,281 A2	1,326 A2	1,266 A2				
iv Adjustments	Em	3	-0,920 B3	-0,935 A2	-1,024 A2	-1,066 A2	-1,026 A2	-1,114 A2	-1,142 A2	-1,274 A2				
60 Outstanding revenue collection operating expenditure (households)	Em	3												
60a Outstanding revenue collection operating expenditure (non households)	Em	3	1,934 DX	1,950 A2	2,098 A2	2,215 A2	2,234 A2	2,169 A2	2,323 A2	2,482 A2				
61 Donations to charitable trusts assisting customers in debt (households)	Em	3												
62 Operating expenditure due to vulnerable household customers	Em	3												
63 Total customer services operating expenditure	Em	3	8,271 A2	8,848 A2	8,551 A2	9,021 A2	10,248 A2	10,362 A2	11,537 A2	12,460 A2				

Table 6a – Bad Debt

Overview

The company operates a partnership with an external service provider (Echo) for customer contact and billing. Customer Services Delivery Directorate works closely with the supplier on all billing matters including debt recovery, designations of customers for write off of debt and estimation of the level of bad debt provisioning to be put in place for potential future write-offs.

The service provider furnishes monthly information for non-domestic measured water and trade effluent income, cash, write-offs, VAT and closing debtor balances to the company from the billing system (RapidXtra). This information is used to produce the monthly management accounts. The figures in Table 6a are derived from this information.

The figures contained within the table are clarified below:

Box A – Revenue Outstanding – Measured Households

For the year ended 31 March 2023 NI Water had no actual revenue from households as this is received by way of a subsidy from Department for Infrastructure (“DfI”). There was £1.80m due to NIW from DfI for subsidy at 31 March 2023. This figure varies to the Statutory Accounts as Septic Tank subsidy is not reported in AIR as it is classified as non-appointed income in the Regulatory accounts.

Box B – Revenue Outstanding – Unmeasured Households

As above, income is received by way of a subsidy from DfI.

Box C – Revenue Outstanding – Measured Non-Households

Revenue outstanding from non-households is the amount of revenue relating to measured water, measured sewerage and trade effluent charges that had been billed in the year but not collected at 31 March 2023.

At 31 March 2023 the closing trade debtor balance was £6.235m. Trade Debtors increased this year largely due to increase in rate.

The debtor balance reported figure is made up of various GL codes and is calculated as measured water and sewerage debtors (including Trade Effluent debtors) less unreconciled receipts, bad debt provision and provision for discount. The bad debt provision is £2.87m and is made up of the following:

- £0.197m for debt over 4 years
- £0.002m for debt 3 - 4 years
- £0.200m for debt 2 – 3 years
- £0.550m for debt 1 – 2 years
- £0.867m for debt 90 – 365 days
- £1.060m for debt less than 90 days

There is one GL code for measured water and sewerage debtors. At year end the GL debtor balance (gross of credit balances) was approx. £2.2m less than the detailed debtors listing provided by Echo. This was due to the following:

- Future system adjustments (£1.5m)
- Other adjustments (£0.7m)

Summary of all relevant rows for Section C

Row 29 – Total Revenue Outstanding < 48 months - Measured Non Households: The total amount of revenue at the end of 2022/23 outstanding from measured non households for less than 48 months. Balance as at 31 March 2023 was £6.235m.

Row 30 – Number of Measured Non-Households with Outstanding Revenue < 48 months: The number of measured non households with revenue outstanding for less than 48 months at 31 March 2023 was 7,818. The number of households has been adjusted in line with the decrease in debtors taking account of anticipated future system adjustments and other adjustments of £2.2m. The £2.2m is approximately 18.67% of total outstanding debtors at 31 March 2023 of £11.9m. An assumption was made to apply a 18.67% reduction across all measured revenue age groups up to 36 months.

Row 31 – Revenue Outstanding < 3 months (Measured Non Households): The total amount of revenue at the end of 2022/23 that has been outstanding from measured non households for less than 3 months. Balance as at 31 March 2023 was £5,695.

Row 32 – Number of Measured Non-Households with Outstanding Revenue < 3 months: The number of measured non households at end of 2022/23, with revenue outstanding for less than 3 months. As at 31 March 2023 this totalled 7,238.

Row 33 – Revenue Outstanding 3-12 months (Measured Non Households): The total amount of revenue at the end of 2022/23 that has been outstanding from measured non households for at least 3 months but less than 12 months. Balance as at 31 March 2023 was £0.508m.

Row 34 – Number of Measured Non-Households with Outstanding Revenue 3-12 months: The number of measured non households at end of 2022/23 with revenue that has been outstanding for at least 3 months but less than 12 months. At 31 March 2023 this totalled 259.

Row 35 – Total Revenue Outstanding 12-24 months (Measured Non Households): The total amount of revenue at the end of 2022/23 outstanding from measured non households for at least 12 months but less than 24 months. At 31 March 2023 this totalled £0.021m.

Row 36 – Number of Measured Non-Households with Outstanding Revenue 12-24 months: The number of measured non households at end of 2022/23 with revenue that has been outstanding for at least 12 months but less than 24 months. At 31 March 2023 this totalled 242.

Row 37 – Total Revenue Outstanding 24-36 months (Measured Non Households): The total amount of revenue at the end of 2022/23 outstanding from measured non households for at least 24 months but less than 36 months. At 31 March 2023 this totalled £0.012m.

Row 38 – Number of Measured Non-Households with Outstanding Revenue 24-36 months: The number of measured non households at end of 2022/23 with revenue that has been outstanding for at least 24 months but less than 36 months. At 31 March 2023 this totalled 78.

Row 39 – Number of Measured Non-Households with Outstanding Revenue 36-48 months: The number of measured non households at end of 2022/23 with revenue that has been outstanding for at least 36 months but less than 48 months.

Once the bad debt provision is applied there are no debtors greater than 36 months. Therefore at 31 March 2023 this row and all remaining rows in box C are zero.

Box D – Revenue Outstanding – Unmeasured Non-Households

Revenue outstanding from non-households is the amount of revenue relating to unmeasured water and sewerage charges that had been billed in the year but not collected at 31 March 2023.

- At 31 March 2023 the closing trade debtor balance was £0.358m (31 March 2022, £3.338m).

The debtor balance reported figure is made up of unmeasured water and sewerage debtors less bad debt provision. The bad debt provision is £0.122m and is made up of the following:

- £0.002m for debt over 4 years
- £0.007m for debt 3 - 4 years
- £0.008m for debt 2 – 3 years
- £0.023m for debt 1 – 2 years
- £0.037m for debt 90 – 365 days
- £0.045m for debt less than 90 days

Summary of all relevant rows for Section D

Row 43 – Total Revenue Outstanding < 48 months - Unmeasured Non Households:

The total amount of revenue at the end of 2022/23 outstanding from unmeasured non households for less than 48 months. Balance at 31 March 2023 was £0.358m.

Row 44 – Numbers of Unmeasured Non-Households with Outstanding Revenue < 48 months:

The number of unmeasured non households at the end of 2022/23 with revenue that has been outstanding for less than 48 months. Total at 31 March 2023 was 328.

Row 45 – Revenue Outstanding < 3 months - Unmeasured Non Households:

The total amount of revenue at the end of 2022/23 outstanding from unmeasured non households for less than 3 months. Balance at 31 March 2023 was £0.003m.

Row 46 – Numbers of Unmeasured Non-Households with Outstanding Revenue < 3 months:

The number of unmeasured non households at the end of 2022/23 with revenue outstanding for less than 3 months. Total at 31 March 2023 was 80.

Row 47 – Revenue Outstanding 3-12 months - Unmeasured Non Households:

The total amount of revenue at the end of 2022/23 outstanding from unmeasured non households for at least 3 months but less than 12 months. Balance at 31 March 2023 was £0.048m.

Row 48 – Numbers of Unmeasured Non-Households with Outstanding Revenue 3-12 months:

The number of unmeasured non households at end of 2022/23 with revenue outstanding for at least 3 months but less than 12 months. Total at 31 March 2023 was 142.

Row 49 – Revenue Outstanding 12-24 months - Unmeasured Non Households:

The total amount of revenue at the end of 2022/23 outstanding from unmeasured non households for at least 12 months but less than 24 months. Balance at 31 March 2023 was £0.248m.

Row 50 – Numbers of Unmeasured Non-Households with Outstanding Revenue 12-24 months:

The number of unmeasured non households at end of 2022/23 with revenue

outstanding for at least 12 months but less than 24 months. Total at 31 March 2023 was 129.

Row 51 – Revenue Outstanding 24-36 months - Unmeasured Non Households: The total amount of revenue at the end of 2022/23 outstanding from unmeasured non households for at least 24 months but less than 36 months. Balance at 31 March 2023 was £0.059m.

Row 52 – Numbers of Unmeasured Non-Households with Outstanding Revenue 24-36 months: The number of unmeasured non households at end of 2022/23 with revenue outstanding for at least 24 months but less than 36 months. Total at 31 March 2023 was - 23.

Row 53 – Revenue Outstanding 36-48 months - Unmeasured Non Households: The total amount of revenue at the end of 2022/23 outstanding from unmeasured non households for at least 36 months but less than 48 months.

Once the bad debt provision is applied there are no debtors greater than 36 months. Therefore at 31 March 2023 this row and all remaining rows in box D are zero.

Box E – Revenue Written Off

Bad debt write-offs

The bad debt write off policy is detailed below. As with all other customer data the company receives monthly figures for bad debt write-offs. The figure for the year is £0.290m (2021/22, £0.275m).

Authorisation of bad debt write-off

With regard to writing off bad debts the service provider has authorisation to write off in accordance with the financial delegations.

Authorisation approval levels are as follows:

Delegation Limits (By Item)	Recommendation from (External service provider)	Approval required Grade (Internal)	DoF/Dfl * (External)
Value			N/A
Up to £100	Agent	Billing, Revenue & Collection Manager L4.	N/A
>£100 to £1,000	Team Manager		
>£1,000 to £5,000	Service Delivery Manager		
>£5,000 to £10,000	Head of Service Delivery	Billing, Revenue & Collections Senior Manager L3	
>£10,000 to £50,000		Director of Customer Service Delivery L2	
>£50,000		Chief Executive	
> £250,000	N/A	Board	>£500k

* All submissions for external approval must be submitted through F&R to the Dfl SU.

Revenue written off is revenue relating to non-household water and sewerage charges along with any trade effluent charges that have been written off in the year.

Revenue written off only includes water, sewerage and trade effluent charges and does not include court costs or other items included.

NI Water uses a third party contractor to manage their debtors and a Debt Management Strategy was drawn up for Echo use to guide their actions and decisions.

Summary of all relevant rows for Section E

Row 57 – Measured Households: As NI Water receives no revenue from households, there was no revenue written off from measured households.

Row 57a – Measured Non-Households: Bad debts written off are calculated on a monthly basis and include trade effluent. The total for 2022/23 was £0.248m (2021/22, £0.229).

Row 58 – Unmeasured Households: As NI Water receives no revenue from households, there was no revenue written off from unmeasured households.

Row 58a – Unmeasured Non-Households: Bad debts written off are calculated on a monthly basis. The total for 2022/23 was £0.040m (2021/22, £0.046m).

Bad Debt provisioning

The methodology for calculating the bad debt provision is based on an analysis of industry specific bad debt which banded specific industry types as high, medium or low risk in terms of collectability of debt. Percentages were then applied in terms of bad debt provision. Percentages for 'high risk' were set at an increased level and percentages for 'low risk' at a reduced level. To recognise the risk arising to certain businesses from the difficult economic conditions, the risk model in the current environment required inclusion of a 'very high' risk classification. NI Water's bad debt provision is calculated as follows:

Provision	0-30 Days	31-60 Days	61-90 Days	91-120 days	121-150 Days	151-180 Days	180-365 Days	1 - 2 Years	2 - 3 Years	3 - 4 Years	4+
Very High	40%	40%	55%	55%	70%	100%	100%	100%	100%	100%	100%
High	30%	30%	45%	45%	60%	90%	100%	100%	100%	100%	100%
Medium	15%	15%	15%	15%	35%	50%	80%	100%	100%	100%	100%
Low	5%	5%	5%	5%	15%	25%	50%	75%	100%	100%	100%

Allocation of Very High, High, Medium and Low

A review of the total debtors (debit balances) was carried out in March 2023. Account balance and aged debt taken into consideration when applying risk of default. Data was filtered by VAT SIC code. Assumptions / Considerations were made in the context of the ongoing difficult economic conditions. Risk model in the current environment requires continued inclusion of a 'very high' risk classification.

The VAT code in tandem with past payment behaviours, legal recovery status, aged debt profile, NI/RoI cross-border trading and various issues/disputes raised via repeat customer contact were all considered when allocating the risk category.

- Top customers were reviewed by name.
- All public sector accounts reviewed e.g. Health Trusts, Education Boards, Schools: <30 days Low, >30 days Medium debts.
- Agricultural customers grouped and reviewed: >£5K reviewed individually and set to High. £1k to £5k reviewed individually and set to High if debt > 180 days, or Medium if <180 days. DD customers low.
- Retail customers grouped and reviewed.
- Hotels, bars and restaurants reviewed - Final account no forwarding address High.
- Charities, voluntary groups, housing associations, churches grouped and reviewed.
- Construction companies, quarries grouped and reviewed.

- Accounts with Standard Vat code reviewed individually, direct debit payers on Medium. (these accounts are mainly new customers who have not yet completed VAT questionnaire, so we can't be sure of activity).
- Manufacturers grouped and reviewed by name (high value) and activity (lower value).
- Food processors grouped and reviewed
- Unmeasured customers in Sic code 6 classified as High.
- Unmeasured customers in Sic code 8 (Banks and Professional Services) classified as Low or Medium.
- Banks all at Medium risk.
- All final accounts classified as High risk.
- **Vat code:**
 - Energy: Low unless debt greater than 180 days when classed as medium.
 - Minerals: <30days Medium, >30 days High.
 - Metal Goods and Engineering: DD – Low, >180 days – High.
 - Other manufacturing: >180 days High if not Key account or DD.
 - Construction: <30 days Medium, >30 days High.
 - Distribution/Catering: <30 days Medium, >30 days High.
 - Transport: >60 days High, <60 days Medium.
 - Banking & Finance: DD Low.
 - Other services: DD Low, >£1k, Medium.
 - Standard Vat Rate unknown: >180 days High, DD Medium unless final account is <180 days and >£1k then High.
 - Domestic Property: >180 days High, <180days and <£100 Low.
 - Redundant zero Vat: Medium.
- Mitigation accounts set as High.
- RPA accounts set as High.

Reduction in Provision

NIW provides against aged debt through the bad debt provision, applying a methodology based on age profile and industry. It is recognised that a proportion of the old debt will not in fact be written off as bad debt but will be eliminated via negative system adjustments and thus be a reduction in income rather than a bad debt expense.

Using the monthly analysis of system adjustments carried out, an estimate of the future system adjustments was made for measured water and measured sewerage only. This was done on the basis of the adjustments in previous months, resulting in an estimate of £1m of future system adjustments.

Bad Debt Provision Summary

The following is a summary of the bad debt provision at 31 March 2023 and 31 March 2022:

	2023	2022
	£m	£m
Measured water & sewerage	2.521	2.840
Unmeasured water & sewerage	0.122	0.361
Trade effluent	0.353	0.166
Total	2.996	3.367

Subsidy

NI Water received £321.0m subsidy in relation to household customers in 2022/23 with nothing outstanding from DfI at 31 March 2023.

NI Water received £18.614m subsidy in relation to non-household customers and at 31 March 2023 an amount of £1.800m was outstanding from DfI. The total subsidy for non-households for the year ended 31 March 2023 was £20.414m. This figure varies to the Statutory Accounts as Septic Tank subsidy is not reported in AIR as it is classified as non-appointed income in the Regulatory accounts.

Lines 59 to 63 – Customer Services Operating Expenditure**Line 59 – General customer services operating expenditure**

The line 59 total of £9.978m in AIR23 is a £0.76m increase (8.29%) against the costs of £9.214m in AIR22. This arises, primarily, for the following reasons:

- Employment costs (increase of £0.24m (4%)).
- Hired and contracted costs (increase of £0.72m (21%)).
- Other costs (decrease of £0.06m (4%)).

Line 60 – Outstanding revenue collection operating expenditure (households)

As NI Water has no actual revenue from households, there is no revenue outstanding from households and therefore no operating expenditure for outstanding revenue collection.

Line 60a – Outstanding revenue collection operating expenditure (non-households)

The calculation of this figure was based on the split of the Gross Service Charge from Echo (Northern Ireland) Ltd. In addition, an estimate of some internal NIW collection costs was included.

Line 61 – Donations to charitable trusts assisting customers in debt (households):

There were no donations to charitable trusts assisting customers in debt in the year.

Line 62 – Operating expenditure due to vulnerable household customers

Household customers in Northern Ireland currently do not pay for water and sewerage services; therefore, NI Water issues no bills to 'vulnerable household customers'.

Line 63 – Total customer services operating expenditure

This agrees to the total of table 21, line 13 and table 22, line 12.

Table 7 – Water Properties and Population

Introduction

Table 7 focuses on the number of properties and population connected to the public water supply system. It extends to 17 lines, set out in three blocks:

- Block A Properties (Lines 1 & 2). Reports properties connected during the year.
- Block B Billing (Lines 3-12). Includes a breakdown of all measured and unmeasured household and non-household properties billed by the company. The property numbers should be the average for the reporting year.
- Block C Population (Lines 13-17). This records the population within each of the measured and unmeasured household and non-household categories. The population numbers should be the average for the reporting year.

In keeping with the Utility Regulator guidance, lines 6, 10 and 17 are calculated lines, being the sum of their equivalent lines within the table. The C&OD Services - MI & Data Team complete Blocks A & B, whilst Leakage DMU complete Block C.

The information in this table is used in a number of core corporate calculations such as the water balance calculation and in tariff, charging analysis and determination (water delivered unit cost).

Data Sources, Data Validation and Data Quality

NI Water's data on property counts and classifications is reported monthly from RapidXtra within the Rapid Property Summary (RPS). The data is extracted from the Diamond Warehouse via Microsoft SQL Server to produce the RPS report.

Our AIR23 methodology has remained consistent with previous years – using the automated Property Model tool to populate Table 7 figures (this was first introduced in AIR12 – the RPS as the input).

The RPS provides us with a snapshot at the end of each month in terms of net movement; however it alone does not support in the explanation of gross movements within the data. The plan is to further enhance the Power BI property models and incorporate these models across the business during 2023/24.

Customer/Property information is updated through:

- BAU ('business as usual') customer contacts, such as new connection requests, customer move in/move outs, or
- through Data Quality initiatives/Projects, and/or
- Metering work streams e.g. UNHH (Selectives), Optants, and Proactive Meter Exchange etc.

Under the Water & Sewerage Services (2006) Order, NI Water were required to install meters on all new household connections from April 2007. This practice has stopped as directed by a change in legislation, which took effect in July 2016. The legislation was amended by Regulations, which in effect relieved NI Water of the obligation to install meters at newly connected domestic properties. As domestic customers are not charged on a measured basis, the property is reported as unmeasured. Some domestic properties were initially reported as measured in AIR10 but this was rectified as per the erratum to AIR10. Depending on the basis for charging when domestic billing is introduced, these customers can be activated as measured household if required.

As per Utility Regulator guidelines, farms were reclassified as billed non-households for AIR09. This classification remains for AIR23 and farms are included in the billed non-households. In AIR08, farms were classified and reported as 'billed' households; on the principle of their status and allocation of 'domestic allowance'.

Data on population continues to be obtained from Northern Ireland Statistics and Research Agency (NISRA), adjusted for the winter months based on information published by the Department for Economy (DFE) and the Central Statistics Office (CSO), Ireland.

The difference between the AIR22 and the AIR23 properties can be explained as follows:

1. New Connections during the 2022/23 reporting year. The figures are based on data supplied by our Customer Connections Team and represent completed connections during the reporting year. The projections for New Connections remain in line with the agreed PC21 forecasts, however, if we notice an upturn or downturn, we will review and amend (during the compilation of the Principal Statement)
2. Added as a result of a customer contact. i.e. septic tank empty request, no water complaint, blocked sewer, updating of standing data e.g. removal of services etc. Within this category there are 2 scenarios:
 - (a) The adding of properties NI Water allegedly did not know about
 - (b) The adding of duplicates as the customer's address could not be found on Rapid. Rapid may hold the site number but when the customer contacts NI Water, they quote the verified postal address, which is different, therefore creating a duplicate. The street name may also have changed from the time of New Connection to that of customer contact (street names can change in the early stages of site development).
3. Removal/reclassification of properties as a result of data quality initiatives/projects
 - (a) Duplicate properties
 - (b) Reclassification of properties that were recorded in error.
4. Change in occupancy status – movement from void/vacant to occupied and vice-versa.

For NI Water, accurate property data is fundamental for many systems and processes, including customer service, metering, billing, consumption, leakage and Major Incident Planning & Response. The Rapid Customer Contact System contains the master property data for NI Water.

As Data Owner for Property Standing Data, The Head of C&OD Services is responsible for the property standing data held by NI Water; this is monitored and managed through the Corporate Property Register (CPR) Project. The C&OD Business Services MI & Data Team chair this group.

The role of the CPR project is to agree a single consistent source of property data and to ensure that there is appropriate governance, controls and reporting for changes made to core data on the system. As Property Data Owners, we need to ensure the processes around creation, maintenance and demolition of properties are governed and appropriate control points and associated reporting are in place. Control is key for us; as such we have identified the systems, processes and people using property information across the business, alongside confirming data accuracy and endeavouring to reduce the opportunities for erroneous data entry and creation (such as the inability to recreate demolished properties or duplicate properties).

The issues under consideration were identified as of corporate relevance, therefore, to ensure appropriate direction and governance the CPR was formalised. Key objectives include:

1. To agree a single consistent source of property data.
2. To ensure the source property data represents accurate, up-to-date information appropriate for use by the business.
 - a. To understand and agree data primacy in respect of data updates from NI Water and external (Land & Property Services - LPS) sources
 - b. To ensure the processes around creation (i.e. New Connections), maintenance and demolition of properties are governed and appropriate control points and associated reporting are in place. i.e. through data validation
 - c. To co-ordinate property reconciliations between NI Water & external sources i.e. Data Sharing Agreements between NI Water & LPS, NI Water & Belfast City Council (BCC) etc and understand the reasons and validity of any differences
 - d. To understand and ensure the adequacy of long term procedures for database maintenance, including the updating of data standards and associated CDE M&M Plans
3. To ensure the reporting requirements for the business are met relating to data held on Rapid, particularly, but not exclusively, in respect of tariffs, leakage, Annual Information Returns (AIR) & Principal Statement (PS) returns.
4. Challenge the data in the areas of
 - a. Data categorisation & structure
 - b. Data robustness – i.e. where is our data good and where is there opportunity for improvement? Identify projects that could aid improvement
 - c. Data alignment – both internally and externally. Internally between systems such as Rapid, Ellipse, GIS, Diamond, Netbase, IMS etc. Externally through data reconciliations, such as LPS above.
5. To agree measures to improve the quality and integrity of the data, particularly the key CDEs as monitored by IMU
6. To agree the content and frequency of reports required by NI Water.
7. To agree the quality checking criteria for the above data and reporting and develop a Quality Plan including the determination of responsibilities and audit trails.
8. To produce & circulate an 'operate and maintain' programme for property data to the business.

The focus for the CPR project remains the same, including analysis and action on:

- Creation of an agreed single consistent source of property information, running alongside the CBC3 timelines
- Volume of properties coming onto the Rapid billing system on a monthly basis
 - new connections
 - customer contact
 - project work
- Volume of properties coming off the Rapid billing system (demolished)
 - sample check to ensure reason for demolition has been noted and on system audit trail recorded
- Volume of properties amended on the Rapid billing system
 - In particular, address fields -> building number, street name, town and postcode
 - sampling to identify if the data changes are data improvement or data regression
 - if data regression, further analysis into the process is undertaken
- Review of access privileges
 - Rapid audit
 - Through monthly audit samples
 - Internal CRs require sign off from CPR team as BAU

- Working with Echo to review access privileges on an ongoing basis
- Interruptions to supply notices – returned mail
 - This returned mail has been previously brought to the attention of LPS and include properties that LPS have classified as live properties despite being returned as 'no such address' etc
 - The 2 way communication with LPS will help underpin our governance work and provide direction to the business on practices

Summary

As Table 7 is based on averages, please find summary table below for 'End March 22' and 'End March 23'. The '1st Dec 2022' are actuals used in the Principal Statement and Tariff Setting process.

Property Numbers	March 2022	1 st Dec 2022	March 2023	Expected Movement
Unmeasured Water Household	769986	775409	777704	Increase
Unmeasured Water Non-Household	9606	9502	9452	Decrease
Measured Water Non-Household	72575	72940	72982	Increase
Voids	50525	50269	49960	Currently no trend
Total	902,692	908,120	910,098	Increase

No Water/Well Water

No Water/Well Water and demolished properties are not included in the Table 7 property count; however their exclusion does not impact on the number of reported 'supplied' properties.

Not all properties are connected to the public water supply system, but some will have a septic tank and will look to NI Water to avail of the free annual septic tank desludging service.

During 22/23 the household no water/well water category increased by 4 and the non-household have increased by 23. Throughout 22/23, the C&OD Business Services MI & Data Team will continue to sample check the No Water/Well Water category to ensure these properties are truly not connected for water.

Site Metered Properties

As part of ongoing data checks, NI Water has been confirming the number of site-metered properties, which are multiple properties being charged through a single meter, such as business parks and industrial estates.

To ensure that these properties are not double counted, they are not included in Table 7 non-domestic property counts (although NI Water retain this information for customer record and charging purposes).

There are 4328 domestic properties (an increase of 230 during 22/23) classified as site meters and there will be further investigation and analysis to be completed during 2022/23 to ensure these are classified correctly.

Overall, the number of non-domestic site meters has increased by circa 267 during 2022/23. This is as a result of categorisation movements in year such as measured water to site meter and unmeasured water to site meter.

Unmeasured Not Charged Properties

From the RPS, there are deemed to be 654 (gross) non-domestic 'unmeasured – not charged' properties which (based on sample taken) are mostly NI Water properties. The C&OD Business Services MI & Data Team are currently investigating any 'unmeasured – not charged' properties outside of NI Water ownership to ensure they are classified correctly.

Unmeasured Household Property Movement

The table below provides a reconciliation of the reporting year property movements and resulting property numbers. It sets out how the properties have changed over the reporting year, due mainly to new connections, alongside some movement in the occupancy status. Note: these reported figures include domestic properties that are metered but as NI Water does not bill households for water, they are reported as unmeasured.

Property Numbers	March 2022	1 st Dec 2022	March 2023
Unmeasured Water Gross Household (L7 year-end sub calc)	808765	806140	816564
Unmeasured Water Occupied Household (L3 year-end sub calc)	769986	767343	777542
Unmeasured Water Voids Household	38779	38866	38860

Household Voids	Voids	Difference (in-year)
March 2023	38860	(+) 81
March 2022	38779	(-) 47
March 2021	38826	

Measured Household Property Movement

Due to the deferral of domestic charging, NI Water does not bill households for unmeasured or measured water, therefore we don't report figures for measured household property movements (they are included in the unmeasured line as they are not billed)

Unmeasured Non-Household Property Movement

Property Numbers	March 2022	1 st Dec 2022	March 2023
Unmeasured Water Gross Non-Household	16506	16191	15719
Unmeasured Water Occupied Non-Household (L8 year-end sub calc)	9606	9502	9452
Unmeasured Water Voids Non-Household	6900	6689	6267

Measured Non-Household Property Movement

Property Numbers	March 2022	1 st Dec 2022	March 2023
Measured Water Gross Non-Household	77421	77654	77815

Measured Water Occupied Non-Household (L9 year-end sub calc)	72575	72940	72982
Measured Water Voids Non-Household	4846	4714	4833

Non-Household Voids

Non-Household Voids	Voids	Difference (in-year)
March 2023	11100	(-) 646
March 2022	11746	(+) 532
March 2021	11214	

Confidence Grades

We have kept the confidence grades consistent with those of AIR22. During the reviews mentioned in the company commentary above, we will retain evidence to support any change in confidence grades.

Whilst the quality of data will improve, the method of extraction and reporting will remain consistent. The automated tool (developed during AIR12) to populate the base property tables has remained in place for AIR23.

Lines 13 – 17 Population

The population data used by NI Water has been derived from 2020 based Population Projections obtained from NISRA (Northern Ireland Statistics & Research Agency) website at <https://www.nisra.gov.uk/system/files/statistics/NPP20-pop-coc.xlsx>

NISRA Population Projections figures are based on births, deaths and migration information gathered by NISRA between 1st July and 30th June for each year. Net migration is the overall difference between the in-migration and out-migration for Northern Ireland and is calculated using health card registration and deregistration data for Northern Ireland. NISRA update their population projections every two years (2020 data is the most recent NISRA Population Projections)

The population for unconnected properties has been calculated from two sources:

1. The gross number of unconnected household properties is provided by Customer Services.
2. The unconnected occupancy is sourced from the NIHE Housing Condition Survey 2016 (statistical annex – Table 5.6).

<https://www.nihe.gov.uk/Documents/Research/HCS-Main-Reports-2016/HCS-Main-Report-2016.aspx>

The number of unconnected properties is 9,411 and an occupancy rate is calculated at 0.865 (rounded) to determine a total population for unconnected properties of 8,141. The total supplied population for all connected properties is calculated as 1912.09 (x1000). (Line 17)

Non-household population has been calculated by adding the population in communal residence (Table 1 - <https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/HP16-bulletin.pdf>) to the population of farms. The number of farms has been determined from the company's Rapid system and the occupancy rate is obtained from NISRA (Tables 2 & 3 <https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/HP16-bulletin.pdf>)

The communal population for AIR23 is 24,530.

The farm population is $31,303 \times 2.513 = 78,667.44$. Therefore with the addition of the communal population, the non-household population is 103.20 (x1000).

The connected household population is the difference between the non-household population and the overall connected population. This gives the household population a figure of 1809.23 (x1000) (Line 13). The confidence grade for this line is a B2. This line remains the dominant figure within Section C of Table 7.

The population for non-household measured/unmeasured was derived from the percentage split between measured (not including farms) and unmeasured non-household properties and applied against the NHH communal population. The total farm population (78,667) has been classed as measured. The communal population (24,530) is split based on 9,529 unmeasured customers (17.00%) and 46,512 measured customers which excludes farms (83.00%). This therefore provides a population for measured NHH of 98.30 (x1000) (Line 16) and an unmeasured NHH population of 4.56 (x1000) (Line 15).

Line 17 is calculated by summing Line 13 + Line 14 + Line 15 + Line 16. This gives a figure of 1912.09 (x1000) which is the total connected population.

It is recognised that the primary means of determining population numbers is from data published by NISRA. Bearing this in mind NI Water, as in previous years, has endeavoured to populate a confidence grade against the various lines. The Reporter has previously stated that in doing so the company has made a reasonable effort to assign appropriate confidence grades and accepts that NI Water has no influence over the methodology adopted by NISRA.

Annex A details the Line Methodology followed for the figures within Table 7 Lines 1-12.

A) Properties

Line 1: Household Properties Connected during the Year

This line represents the number of new household (domestic) properties added within the area of supply during the reporting year (previously not connected for water supply).

The figures are based on the New Connections reported by the Customer Connection Team (CCT), as per embedded document. It is NIW policy to install meters on all Non-Domestic New Connections.



AIR 23 NC_ 6228
Water.xlsx

Therefore, the number of new household connections for the year is 5891.

Household properties connected during the year	5891
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Line 2: Non-Household Properties Connected during the Year

This line represents the number of new non-household (non-domestic) properties added within the area of supply during the reporting year (previously not connected for water supply).

The figures are based on the New Connections reported by the Customer Connection Team (CCT), as per embedded document. It is NIW policy to install meters on all Non-Domestic New Connections.

Therefore, the number of new non-household connections for the year is 337.

Non-Household properties connected during the year	337
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B) Billing

Line 3: Households Billed Unmeasured water

Due to the deferral of domestic charging, NI Water does not bill households for unmeasured or measured water.

Void properties have been excluded, so occupied numbers only used.

This is calculated from the monthly Rapid Property Summary for AIR22 (dated 31st March 2022) as attached below.



RPS - Mar YE
2023.xlsx

Households Billed Unmeasured Water	End March 2022	End March 2023
Household – Unmeasured	722659	729957
Household - Measured – Not Charged (test meters)	8	8
Household - Measured	44508	44766
Household - Site Meters	2503	2957
Unmeasured - Not Charged	16	16
Total	769986	777704
Average (Apr22/Apr23)	773699	

The figure represents the number of unmeasured domestic properties that would have been billed had charging been introduced.

Line 4: Households Billed Measured Water (external meter)

Due to the deferral of domestic charging, NI Water does not bill households for measured water. Therefore, any domestic properties that would have been included in line 4 are now included in line 3, as per AIR10 erratum, Reporters Recommendations and Undertaking A Agreement.

Households Billed Measured Water (external meter)	End March 2022	End March 2023
	0	0
Average Apr22/Apr23	0	

Line 5: Households Billed Measured Water (not external meter)

Due to the deferral of domestic charging, NI Water does not bill households for measured water.

Average number of billed metered households (not externally metered).

An internal meter is one located inside the customer's property or attached to the property at above ground level in a box or cabinet. All other meters should be classed as external with void properties excluded.

Households Billed Measured Water (internal meter)	End March 2022	End March 2023
	0	0
Average (Apr22/Apr23)	0	

Line 6: Households Billed Water

Average number of households billed for water within the water supply area.

Calculated by adding AIR23 Table 7 lines 3, 4 and 5

Households Billed Water	Average 22/23
Households billed unmeasured water (Line 3)	773699
Households billed measured water (external meter) (Line 4)	0
Households billed measured water (not external meter) (Line 5)	0
Total	773699

The figure represents the number of domestic properties that would have been billed had charging been introduced.

Line 7: Household Properties (water supply area)

This is the number of connected household properties within the water supply area, including void properties.

This is calculated from the monthly Rapid Property Summary for AIR23 (dated 31st March 2023)

Household Properties (Water Supply Area)	End March 2022	End March 2023
Unmeasured	755350	762648
Measured – Not Charged (Test)	8	8
Measured	49292	49563
Site Meters	4098	4328
Unmeasured - Not Charged	17	17
Total	808765	816564
Average (Apr22/Apr23)	812665	

Line 8: Non-Household Billed Unmeasured Water

This is the average number of non-households billed for unmeasured water within the supply area, calculated from the Rapid Property Summary.

Figures are based on the average of End March 2022 and End March 2023 non-domestic unmeasured properties.

Non-Households Billed Unmeasured Water	End 2022	March	End 2023	March
	9606		9452	
Average (Apr22/Apr23)	9529			

Line 9: Non-Household Billed Measured Water

This figure represents the average number of non-households billed for measured water within the supply area, calculated from the Rapid Property Summary.

Figures are based on the average of End March 2022 and End March 2023 non-domestic measured properties.

Non-Households Billed Measured Water	End March 2022	End March 2023
	72575	72982
Average (Apr22/Apr23)	72779	

Site metered properties are a subset of the overall non-domestic billed measured water customer base, therefore not included in the figure above to avoid duplication. E.g. Where multiple businesses/properties are served through one site meter, only the landlord or business park management is considered as the customer.

Line 10: Non-Household Billed Water

This figure represents the average number of non-households billed for water within the supply area.

This is calculated from the Rapid Property Summary for AIR23, excluding voids.

The sum of AIR23 Table 7 lines 8 & 9

Non-Households Billed Water	Average 22/23
Non-Households Billed Unmeasured Water (Line 8)	9529
Non-Households Billed Measured Water (Line 9)	72779
Total	82308

Line 11: Non-Household Properties (water supply area)

This is the average number of connected non-household properties within the water supply area, including void properties, calculated from the Rapid Property Summary.

Non-Household Properties (Water Supply Area)	End March 2022	End March 2023
Unmeasured	16506	15719
Measured	77421	77815
Total	93927	93534
Average (Apr22/Apr23)	93731	

Line 12: Void Properties

This is the average number of properties, within the supply area, which are connected to the distribution system but do not receive a charge, as there are no occupants – (voids). This is calculated from the Rapid Property Summary.

Void Properties (Water Supply Area)	End March 2022	End March 2023
Non-Household – Unmeasured	6900	6267
Non-Household – Measured	4846	4833
Household – Unmeasured	32691	32691
Household - Measured	4784	4797
Household – Measured - Not Charged (Test)	0	0
Household – Site Meters	1303	1371
Household - Not Charged	1	1
Total	50525	49960
Average	50243	

NORTHERN IRELAND WATER LIMITED - ANNUAL INFORMATION RETURN

ANNUAL INFORMATION RETURN - TABLE 8 NON FINANCIAL MEASURES
WATER METERING (TOTAL)

DESCRIPTION	UNITS	DP	1		2		3		4		5		6		7		8		9		10		11		12		
			REPORTING YEAR	CG	REPORTING YEAR	CG	REPORTING YEAR	CG	REPORTING YEAR	CG	REPORTING YEAR	CG	REPORTING YEAR	CG	REPORTING YEAR	CG	REPORTING YEAR	CG	REPORTING YEAR	CG	REPORTING YEAR	CG	REPORTING YEAR	CG	REPORTING YEAR	CG	
A HOUSEHOLD METER INSTALLATION																											
1	Selective meters - installed	nr	0		5,218	B3	1,395	B3	0	B3	0	A1	0	B3	0	A1	0	A1									
2	Meter optants installed	nr	0		0	A1	0	A1	0	A1	0	A1	0	A1	0	A1	0	A1									
3	Meters installed - external meter with existing or new boundary box	nr	0		5,218	B3	1,395	B3	0	B3	0	A1	0	B3	0	A1	0	A1									
4	Meters installed - external meter without boundary box	nr	0		0	A1	0	A1	0	A1	0	A1	0	A1	0	A1	0	A1									
5	Meters installed - internal meter	nr	0		0	A1	0	A1	0	A1	0	A1	0	A1	0	A1	0	A1									
6	No. of meter installation requests outstanding for greater than three months	nr	0		0	A1	0	A1	0	A1	0	A1	0	A1	0	A1	0	A1									
B NON HOUSEHOLD METER INSTALLATION																											
7	Selective meters - installed	nr	0		473	B2	449	B2	601	B2	699	B2	708	B2	721	B2	500	B2	467	B2							
7a	Number of non household meters renewed	nr	0		9,830	B2	9,671	B2	3,186	B2	3,150	B2	3,344	B2	6,927	B2	3,712	B2	4,871	B2							
8	Meter optants installed	nr	0		20	B2	57	B2	61	B2	52	B2	71	B2	46	B2	63	B2	65	B2							
9	Meters installed - external meter with existing or new boundary box	nr	0		469	B2	452	B2	614	B2	709	B2	706	B2	733	B2	523	B2	473	B2							
10	Meters installed - external meter without boundary box	nr	0		22	B3	38	B3	37	B3	35	B3	61	B2	30	B3	36	B3	43	B3							
11	Meters installed - internal meter	nr	0		2	B2	16	B2	11	B2	7	B2	12	B2	4	B2	4	B2	16	B2							
12	No. of meter installation requests outstanding for greater than three months	nr	0		2	B2	6	B2	4	B2	0	B2	4	B2	5	B2	1	B2	4	B2							
C WATER DEMAND AT RECENTLY METERED NON-HOUSEHOLD PROPERTIES																											
13	Average water billed - selective metered properties	l/prop/d	2		384.09	B3	532.55	B3	580.74	B3	628.33	B3	440.49	B3	221.39	B3	518.59	B3	584.98	B3							

Table 8 – Non Financial Measures – Water Metering

Regulations made in 2016 removed the Art 81 obligation on NI Water to meter newly connected domestic premises.

Line - 1 Selective meters installed

NI Water no longer installs meters at newly connected domestic premises for reasons stated above, no domestic premises had meters fitted in the reporting year.

Line 3 - Meters Installed – external meter with existing boundary box

All newly connected domestic properties are provided with a boundary box at or as close to the boundary as possible when connected to the water main. As such all new domestic properties have the capability to have a water meter fitted.

NI Water no longer installs meters at newly connected domestic premises for reasons stated above, no domestic premises had meters fitted in the reporting year.

Lines 7-12 - Non household meter installation

NIW installs water meters at newly connected non-domestic premises as per the obligation associated with Article 81 of The Water and Sewerage Services (Northern Ireland) Order 2006.

The company in an attempt to increase its meter penetration where permissible is continuing to install meters across its non-domestic revenue generating customer base, providing it is technically possible to do so.

Line 7 - Selective meters installed

Meters installed at the behest of NI Water include those properties selected because they are new non-domestic connections or fall into the selective category. The total selective meter installs for the year was 467. New connections accounted for 36 large and 317 small diameter installations, the other 114 installations are classed as selectives performed by the metering contractor and NIW staff.

Line 7a - Number of non-household meters renewed

NIW has a reactive meter maintenance section within the MCT and reactively replaces meters and street furniture associated with meters. The maintenance activities are driven by reports generated by the meter readers, meter query technicians and project teams. All Meter Maintenance Requests (MMR's) are opened as cases on the corporate case management system (Savvion) and issued to the contractor via a daily batch. The returned data is processed automatically via uploads to the Savvion system and any rejects go to various queues within the system monitored and progressed by NIW teams. The meter maintenance process is an end-to-end process managed by the metering section using a corporate process flow system known as Savvion linked to the corporate billing system. During the reporting year NIW meter maintenance section replaced 1147 meters through the RMM process.

NIW also had a Proactive Meter Exchange (PME) programme which was designed to target a number of small diameter meters exchanges each year. The meters selected for exchange are those deemed to be 17 years of age or more and where possible those meters with a whole life consumption reading >8000m³. The methodology has changed in agreement with the UR, by targeting meters due to hit their PME criteria within the PC21 period. This change

in approach has increased the efficiency both at time of installation and operationally, as the benefits of AMR meters can only be achieved when a large % of the walks are AMR enabled.

NIW exchanged 2298 meters under the PME programme, up from 367 PME replacements in 21/22. The PME activity in 21/22 was significantly less due to the funding being set prior to the final determination being released. PME budget for 21/22 was therefore set at PC15 levels and did not include the increase in planned PME activity for the PC21 period.

An additional 324 meters were replaced through an Engineering and Procurement contract for water mains rehabilitation.

Other teams within NI Water replaced a total of 1102 meters during the course of their activities and investigations.

The total number of meters replaced by NIW in the reporting year combining all of the above work streams was 4871 meters, this is more than AIR 22 (3712 meters renewed) due to the increase in PME activity.

Line 8 - Meter optants installed

NIW will install meters at existing non-domestic premises when a customer requests a meter and providing it is technically possible to do so. An optants process is in operation and has been communicated across the company to include the Customer Services Centre (CSC). If an unmeasured customer contacts the company and requests the option to have their premises billed as a measured (metered) property and it is determined following a survey to be possible, a meter will be installed. It is the company preference to install meters externally in boundary boxes or in chambers however if this is not technically possible an internal meter will be considered. The total number of non-domestic meter optants for the reporting year was 65.

Line 9 - Meters installed – external meter with existing boundary box

NI Water continues to actively install external meters across a number of metering work streams which includes optants and other selective non-domestic customer properties. While the majority of these are fitted in existing boundary boxes which essentially entails screwing in a meter, other installations can only be completed with the replacement of the boundary box. This involves replacing legacy stop tap boxes often referred to as 'Toby' boxes and replacing them with modern proprietary boundary box units. The total number of non-domestic meters installed within this category was 473.

Line 10 - Meters installed – external meter without boundary box

NI Water Developer Services Team (DS) is responsible for coordinating new non-domestic water connections and meter installations >32mm diameter. These large connections by the nature of their size require a chamber constructed to facilitate the meter and valves installations, these totalled 36 in the reporting year, with an additional 7 LD meters being installed proactively by the company not as a result of a new connection, giving a total of 43 installed in the reporting year.

Line 11- Meters installed – internal meters

NI Water's preference is to install meters externally when possible. Internal installations are only considered and undertaken when the possibility of an external installation has been discounted because of engineering difficulties, shared supplies or an inability to capture the total volume of water entering a property. Internal meters have been installed across the

selective and optant metering programmes. The total number of internal non-domestic meter installations completed this reporting year was 16.

Line 12 - No. of meter installation requests outstanding for greater than three months

The number of non-household optant meter installation requests that took longer than 3 months to complete were 4.

Line 13 – Average Water Billed - Selective Metered Properties

The meters uploaded to Rapid during the previous reporting year (2022/22) are the focus for this line, along with the consumption usage throughout the 2022/23 reporting year.

The TRIMMEAN function was applied to the consumption to ensure the result was a true average. There were some very high and very low consumption, which would have skewed the results.

The figure reported for Line 13 is 584.98 l/prop/day, an increase of 66.39 l/prop/day from AIR22. To demonstrate the range of consumption for AIR22 and AIR23, please see table below:

Consumption Band (m ³)	AIR22	AIR23
1-1000	1322	1471
> 1000	122	154
Total (excl. zeros)	1444	1625

The embedded document below details the meter industry codes of the meters included in this calculation. The categories where there has been an increase in the number of meters have been highlighted - This will help to explain/justify the increase in the l/prop/day volume.



AIR_22_23
Comparison per MIC

Table 9 – Water Quality

COVID-19

IMPORTANT Due to Covid 19 restrictions, customer tap samples were collected at upstream Service Reservoirs from 1st January 2022, with some customer tap only parameters excluded.

NI Water recommenced sampling at public buildings with effect from the week commencing 28th February 2022, and at private customer taps with effect from 14th March 2022.

Background – Year on Year

Drinking water quality compliance in 2022 was above the target level set for all water quality monitoring measures.

The perceived quality of water supplied by NI Water to customers has risen slightly over the last number of years:

- NI Water now assesses compliance using % Overall Compliance across customer tap, WTWs, SRs and Authorised Supply Points rather than Mean Zonal Compliance. Under this means of assessment, NI Water's compliance has risen slightly from 99.89% in 2021 with 99.91% in 2022 (figure assessed by NI Water - waiting for confirmation from DWI). **This has been affected as above, by not sampling at customer taps during much of 2021 but resuming to a large degree in 2022.**
- The Drinking Water OPA (based on turbidity, iron, manganese, faecal coliforms, Total Trihalomethanes (THM) and aluminium at customer tap) has remained steady with 99.63% in 2021 to 99.63% in 2022. **This has been affected as above, by not sampling at customer taps during much of 2021 but resuming in 2022.**
- The percentage compliance measured at Water Treatment Works (WTWs) has stayed reasonably stable from 99.98% in 2021 to 99.95% in 2022.
- The percentage compliance measured at Service Reservoir (SR) has stayed stable from 99.94% in 2021 to 99.94% for 2022.

The previous method of compliance assessment (Mean Zonal Compliance) gave undue emphasis on individual exceedances in small zones. The % Overall Compliance methodology treats all exceedances with the same emphasis.

Line 6 – Raw water deterioration

The data used for the estimation of average flow at WTWs in Table 9 lines 6-9 was supplied from operations leakage metering. For this return the Distribution Input was calculated as the average daily flow from the various individual sites or amalgamation of associated readings obtained from leakage metering. In accordance with the guidance, sites that were out of service at the end of the reporting period (the calendar year) will have been excluded and would be listed here.

Over the past number of years, NI Water's WTWs have had a number of exceedances of the pesticide MCPA. A programme of enhanced monitoring for MCPA has been setup for these sites. DWI is content with the above enhanced programme and the sites have not been included in the calculations.

Authorised Departures are no longer likely to be used as regulatory instruments against NIW by DWI. Notice under Regulation 31(4)(b) and Enforcement Orders (including "Consideration of Provisional Enforcement Orders", "Provisional Enforcement Orders") are now the methodology by which NIW is regulated by DWI.

A PEO for Derg WTW was opened in 2016 due to contravention of the Regulatory Standard for the pesticide MCPA. This was closed in 2019 and replaced with a Regulation 31(4)b notice which is ongoing.

A CPEO for Ballinrees WTW was opened in 2017 for the pesticide MCPA. This was closed in 2019 and replaced with a Regulation 31(4)b notice which is ongoing.

Including these 2 sites, the volume for Raw Water deterioration is therefore 46.321 MI/d.

Line 7 – Conditioning water supplies to reduce Plumbosolvency

NI Water, as required by the Drinking Water Regulations (Regulation 32), has put in place orthophosphoric acid dosing to control plumbosolvency in the distribution system. This control measure is agreed with the DWI and the Health Authorities. The average initial dose rate was approximately 1 mg/l following propensity testing. The level of dosing is reviewed annually against compliance with existing lead standards, with DWI being informed as to the proposed dosing rates. DWI has the opportunity to query the proposed dose rates. Following the annual review, the dose rates were adjusted as agreed.

Site Name	Average Dosed Water (MI/d)
Altnahinch	8.356
Ballinrees	30.152
Belleek	1.526
Carmony	18.342
Carran Hill	5.307
Castor Bay	106.308
Caugh Hill	18.602
Clay Lake	4.437
Derg	16.169
Dorisland	20.228
Drumaroad	100.037
Dungonnell	8.531
Dunore Point	118.174
Fofanny	36.765
Forked Bridge	11.522
Glenhordial	3.902
Killyhevlin	26.571
Killylane	11.396
Lough Bradan	7.859
Lough Fea	12.937
Lough Macrory	10.912
Moneymore	0.379
Moyola	15.255
Seagahan	10.619
Total:	604.285

Line 8 – Reducing the risk from Cryptosporidium

DWI approved Cryptosporidium risk assessments were previously carried out on all sources annually and showed effective barriers existed at all NI Water's treatment works.

The risk assessment for Cryptosporidium in the treated drinking water supply is carried out under the Drinking Water Safety Plan (DWSP) Regulation 31 Report for the treatment works and supply systems. The DWSP assesses the risk in the catchment and the treatment works pre and post control measures. The post control risk demonstrates if the treatment process has effective barriers in place to control the risk in the treated drinking water supply to low risk. The DWSPs are revised at least annually and submitted to the DWI.

Under the current guidance, which requires that this should be assessed against sites with “legally binding instruments,” NI Water has no sites which fall into this category.

A warning letter for a Cryptosporidium exceedance at Drumaroad WTW was issued by the DWI during 2018. The treatability study carried out at Drumaroad WTW in PC15 identified treatment improvements to be undertaken to meet industry best practice for Cryptosporidium control. An Annex A has been submitted to the DWI to request support for a PC21 Water Non-Infra – WTW’s funded scheme.

The return for this line is therefore 0 MI/d.

Line 9 – Other

No legal instruments were put in place during 2022 (see appendix).
The return for this line is 0 MI/d.

Confidence Grades

Confidence grades used in returns are based on OFWAT guidance documentation.

Appendix – Lines 6, 8 & 9

Site	Regulatory Enforcement	Parameter	Date Issued	Date Closed
Derg WTW	Reg. 31(4)(b) Notice 2020/001	MCPA	30.06.2020	Ongoing
Ballinrees WTW	Reg. 31(4)(b) Notice 2020/002	MCPA	17.12.2020	Ongoing
Ballinrees WTW	Reg. 31(4)(b) Notice 2020/003	Taste & Odour	17.12.2020	Ongoing
Drumaroad WTW	Reg. 31(4)(b) Notice 2021/001	Aluminium	08.07.2021	Ongoing

Table 10 – Non Financial Measures - Water Delivered

Introduction

NI Water continues to follow the methodology as described in Chapter 10 of the Utility Regulator (UR) AIR23 Reporting Requirements and Definitions manual February 2023. In doing so it has adhered to the methodologies for estimating the water balance set out in the Demand Forecasting Methodology report produced by NERA on behalf of UKWIR.

NI Water uses the Sustainable Economic Level of Leakage (SELL) study as the method of deriving company leakage targets and to inform the PC21 business plan. As a result of the SELL study, utilising base year data from 2018/19, NI Water has challenged themselves with a target to reduce leakage to 150 MI/d over the six year period of PC21 (April 2021 to March 2027). The UR final determination has agreed the 150 MI/d target.

For AIR22, the first year of the 6-year PC21 period, the reconciled leakage target was 157.0 MI/d. NI Water reported for AIR22 a reconciled leakage figure of 155.6 MI/d. For AIR23 the reconciled leakage target was 156.0 MI/d. NI Water is reporting, for AIR23, a reconciled leakage figure of 162.3 MI/d. For AIR23, the pre-MLE bottom-up leakage figure of 159.6 MI/d equated to an increase of 7.4 MI/d from AIR22.

Throughout this reporting year, societal and commercial interpretations of a post-COVID world continue to impact on NI Water's commitment to deliver its customer demand requirements. In addition, intense weather events, whether hot or cold, wet or dry, also dictate how NI Water operates during, and recovers from, these events. The water industry is working to understand how these influences on the distribution network affect demand strategies and impact leakage.

In summary, the outputs of this water balance are that the Integrated Flow Method of leakage assessment has given a figure of 176.31 MI/d for total leakage and the Minimum Night Flow Method has provided a figure of 159.64 MI/d. When the resulting imbalance between the two methods of 16.67 MI/d is compared to the Distribution Input figure of 607.84 MI/d (pre-MLE), it provides a percentage discrepancy of 2.74%. This remains within the 5% tolerance set to enable a Maximum Likelihood Estimation method to be applied, using the squares method, and produces a reconciled leakage figure of 162.3 MI/d. This figure is 6.3 MI/d behind the profiled leakage target of 156.0 MI/d for Year 2 of PC21. This commentary will provide an analysis of Leakage performance and reporting during AIR23.

Demand Analysis

The pre-MLE distribution input for AIR23 was 607.8 MI/d, a slight decrease of 0.6 MI/d from 608.4 MI/d reported in AIR22.

The graph in Fig.2 below illustrates the monthly distribution input for AIR23 and includes the previous 5-year distribution input back to AIR18 for comparison. The graph shows that the DI for the first 8 months of AIR23 was generally lower each month than that observed during 2021/22, except for the increased demand during August when NI Water experienced a hot weather event. In addition, the occurrence of a freeze/thaw in December 2022, after three weeks of negative average weekly ground temperatures, resulted in increased leakage across the majority of DMAs. The magnitude of this event, Fig. 1, shows that the time to recover the 42 MI/d increase in leakage was 18 weeks. Analysis reports that leakage increased by 35%, that 85% of NI Water's DMAs were impacted and that 707 DMAs (61%) had increased leakage of 0.5 l/s or less. For comparison, Fig. 1 also shows the impact on

leakage observed during the 'Beast from the East' event in 2018/19 and the Freeze/Thaw event in 2010/11.

NI Water, along with the other GB water companies, experienced a similar cold weather event in this reporting year including two further periods of significant negative ground temperatures in mid-January and early March, both of which contributed to further leakage outbreaks.

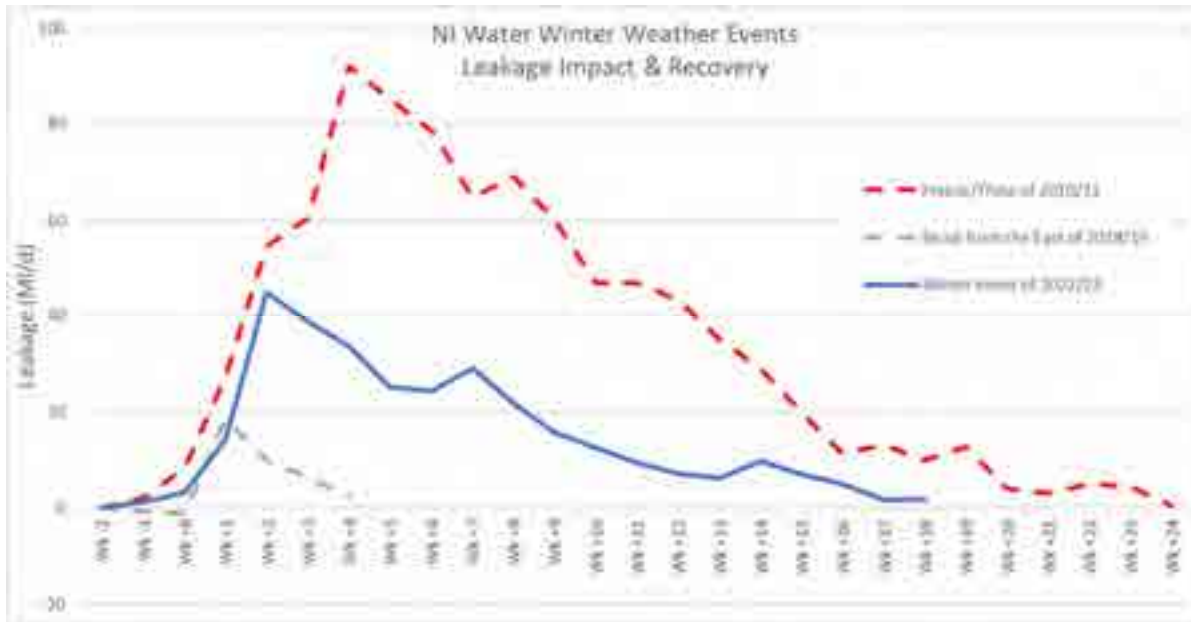


Fig. 1

As noted in previous commentary, water companies are yet to understand the social and commercial impact that a global pandemic has brought to the water industry and future demand strategies. In addition, changes experienced in global weather patterns will also bring uncertainty within the industry.

In September 2022, there was an observed decrease in demand (refer to Fig. 6) which can be attributed to reduced household usage. It is believed that this coincides with a greater uptake in returning to work once the school term commenced and which was potentially influenced by the impacts of the 'cost-of-living crisis'.

Fig. 3 shows the three periods of rapid decreases in weekly average ground temperatures down to a minimum observed $-7.8\text{ }^{\circ}\text{C}$ followed by rapid thaws resulting in up to $10\text{ }^{\circ}\text{C}$ increases.

Fig. 4 shows that annual recorded average temperatures were the greatest observed including those below ground temperatures at 30cm and 100cm depths.

Fig. 5 shows AIR23 having an average cumulative rainfall in the last 15 years and above average sunshine.

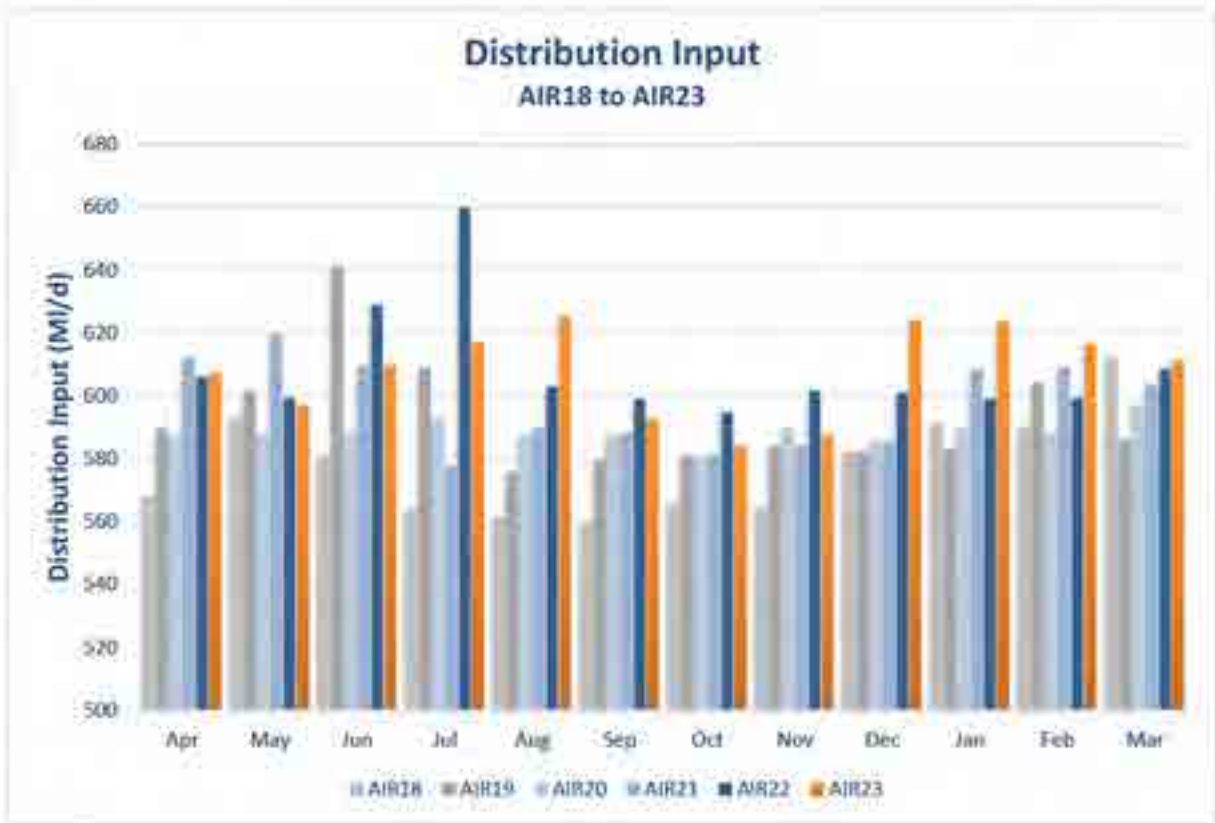


Fig. 2

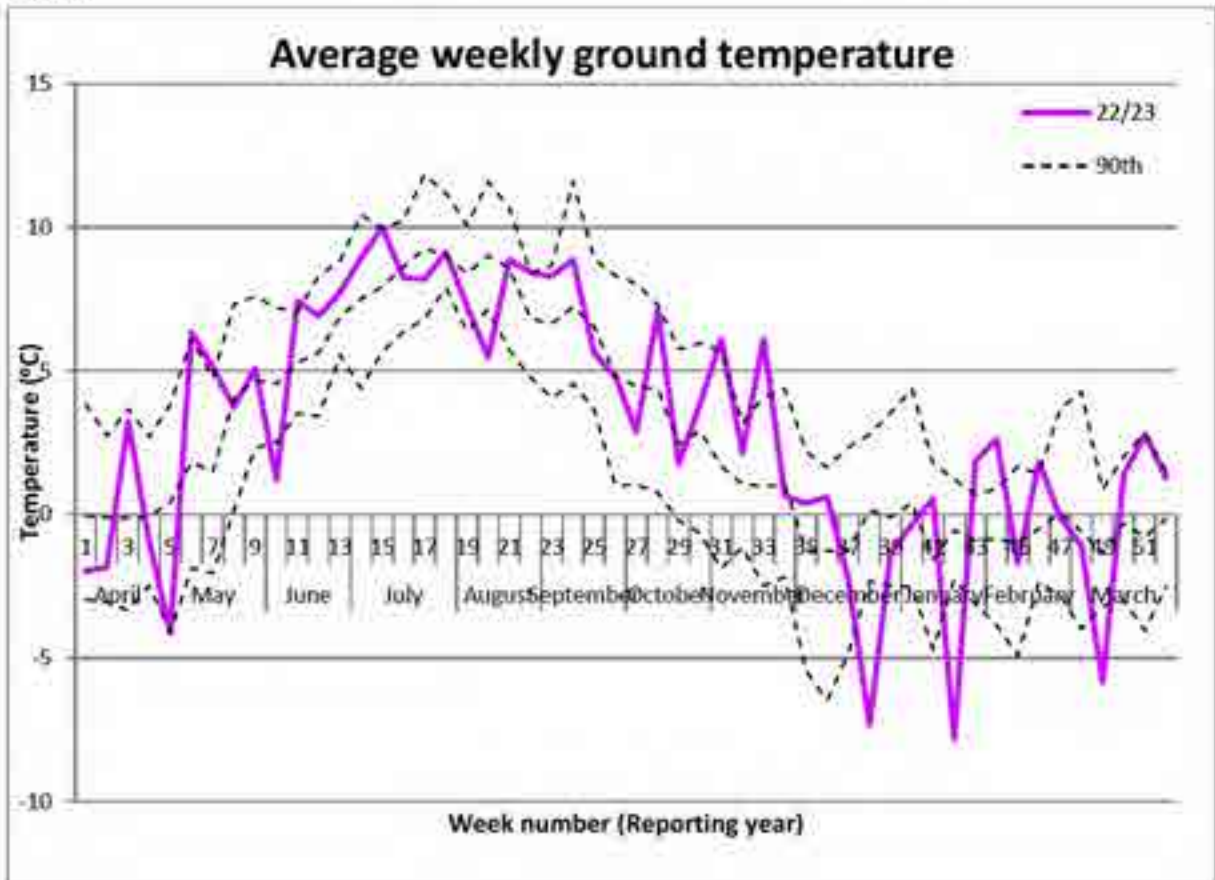


Fig. 3

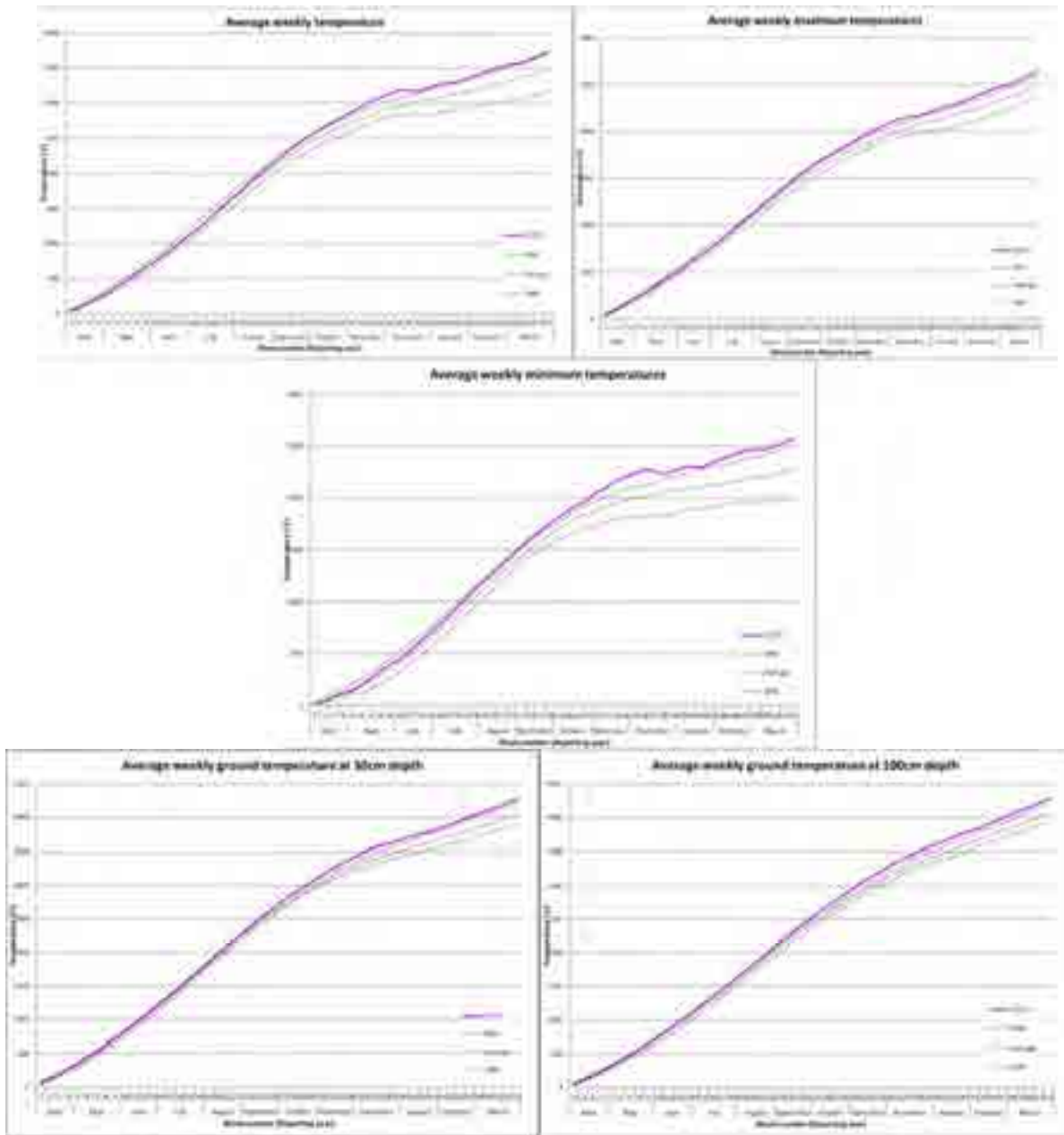


Fig. 4

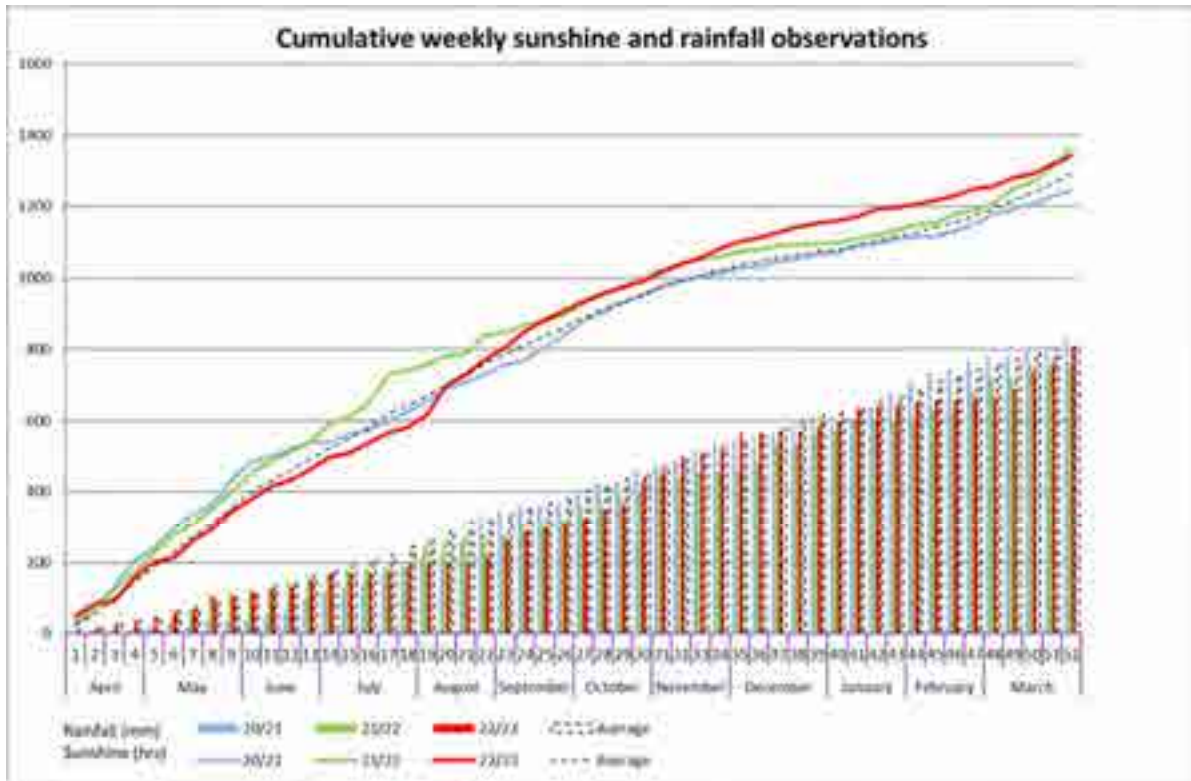


Fig. 5

Fig. 6 indicates that household demand broadly trends with the distribution input including the stepped decrease observed at the start of September 2022.

In December 2022, the distribution input and leakage increased, and this coincides with an increase in PCC. Analysis is ongoing to determine the significance of the PCC increase since the winter event on customer supply pipe leakage.

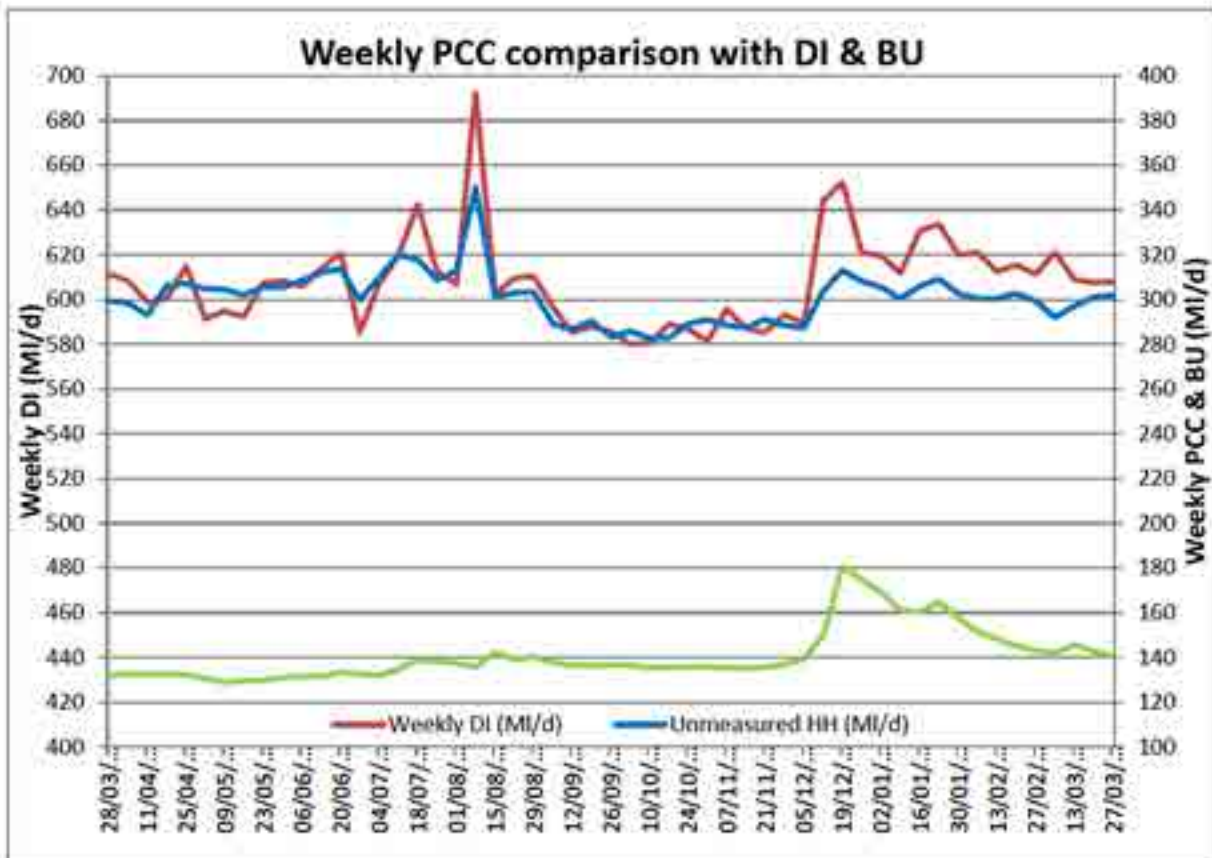


Fig. 6

Data Quality

NI Water has remained committed to improve data quality. During PC21, further improvements to data will continue to take place through various programmes of work and the dynamic calculation of key leakage components.

With Netbase embedded as NI Water's leakage reporting tool, the UKWIR 20th Percentile calculation of Bottom Up leakage remains as reported in AIR22 commentary and in keeping with the Reporter's recommendations the Bottom Up error estimation is 10%.

During AIR22, NI Water completed a project to upgrade to the latest version of our leakage management software, Netbase v26. This upgrade aligns NI Water to all other GB companies utilising this software and will enable NI Water to develop its leakage analysis, calculations, and strategies through the integration of various initiatives and enhancements outlined in our PC21 Business Plan submission. Data enhancements and initiatives will be integrated throughout the PC21 period. As part of the Netbase upgrade, a Leakage Impact Assessment was completed to determine any potential variation in the Bottom Up leakage calculation due to the version update. This assessment was completed for the year 2020/21 and indicated that Bottom Up leakage could increase by 0.47 MI/d. In addition, for 2021/22, a period of parallel running of both Netbase versions indicated that the annual Bottom Up leakage could decrease by 0.5 MI/d. AIR22 leakage reporting was calculated using Netbase v17. During 2022/23, NI Water, along with the leakage management software supplier, will continue its analysis of the Netbase v26 calculations. AIR23 leakage reporting was calculated using Netbase v26.

NI Water are reporting an average DMA operability value of 79% for AIR23. NI Water is focussed on the continued improvement of operability however understand that this can be impacted by infrastructure upgrades, improvements, and weather/major events. It is expected that the additional functionality of the upgraded leakage management software, in parallel with PC21 infrastructure and data improvements, will result in an increased DMA operability value.

As a result of the higher demands observed in August 2022, operability dropped to an average of 67% following a period of dry & sunny weather conditions. During PC21, NI Water will continue to improve operability via a number of project streams outlined in the PC21 Business Plan.

COVID19

The unprecedented COVID19 pandemic has impacted the way in which domestic and commercial properties have used water. In AIR21, analysis showed that household demand increased by 10% annually while non-household demand decreased by 7%. During the AIR22 period, and as a result of the incremental lifting of imposed restrictions, measured non-household consumption has increased by approx. 10%, however household consumption has remained elevated and could be associated with continued working from home or the adoption of hybrid working practises.

For AIR23, it is likely that household demand was still being impacted by the pandemic and it is uncertain at this time whether working and social practises will return to 'normal' however analyses will continue to understand the potential impact to the leakage calculations.

Trunk Mains & Service Reservoirs

With an aspiration towards the use of company specific calculations for all key aspects of the water balance, NI Water continue to build on their trunk main and service reservoir leakage calculation through the primary use of flow balance assessments. A number of imbalances have been addressed which have included meter issues and connectivity. NI Water continues to consider it prudent to fully investigate trunk main audits with perceived leakage to understand the resource economics and uncertainty associated with flow balances for trunk mains and service reservoirs. Innovation will also be utilised and trialled to assist in the location of potential leakage. Over the PC21 period, NI Water propose to introduce a phased reporting of trunk main and service reservoir flow balance audits into the leakage calculation.

Gross Measured Consumption

As part of the annual tariff submission to NIAUR, NI Water is required to submit the Principal Statement Information Capture System. One of the consistency checks in this submission is to compare the billed measured non-household volume (Table 10 Line 2) with the Principal Statement and for these volumes to reconcile to within 1%. Reconciliation of both the Gross Measured Consumption Report and Principal Statement has closed to 0% since the 2014/15 reporting year.

HDF

As part of continuing data enhancements, and outlined within the PC21 business plan, NI Water has commenced work on the installation of over 3000 permanent pressure monitors and the development of a pressure model utilising Netbase, data analytics and modelling. This model will allow NI Water to calculate HDF dynamically and reduce interruptions to supply and it is envisaged that the reported HDF will be introduced and enhanced during PC21.

Leakage Capital Investment

The PC21 leakage business plan clearly identified a number of key areas of capital investment to replace and improve our network/assets as well as the ongoing improvement in data availability and quality. The development and enhancement of monitoring the water network is a key strategy in understanding demand, consumption and leakage. All DMA meters utilised in the leakage calculation are now monitored both directly through telemetry, with 93% of the stock operating via telemetry kiosks, and the remainder updating regularly throughout the day and configured to alarm immediately upon the breach of a flow threshold. Logger enhancements have provided the capability to poll loggers remotely to return data similar to live telemetry updates. Multiple daily data downloads in parallel with the setting of flow and pressure alarm protocols have increased data availability and quality to enhance leakage monitoring, targeting and reporting as well as being available during major incidents. Throughout PC21, NI Water will trial and utilise enhanced communication methods, e.g. NBIOT, which will allow more dynamic data analytics to be developed.

During 2022/23 projects were carried out to replace existing PRV stock that are operational across the network and to design, install and commission new PRV sites to optimise leakage reduction. This has resulted in 49nr PRV replacements and 58nr new PRV installations during the year both of which have included the installation of enhanced pressure control where appropriate.

DMA optimisation continues to play an important role within the success of the function. In 2022/23 the resolution of High Volume DMAs has played a key part in this. The underlying objective has been initially to investigate the unique factors that cause these DMAs to behave in such a manner and subsequently to provide an engineering solution where possible to reduce leakage. DMA optimisation has also resulted in the review of DMAs with mains length greater than 75km. This has resulted in the increase of our DMA stock to 1150.

As work has continued in regard to High Volume DMA studies, DMA optimisation and data quality improvements, this has resulted in the installation of infrastructure improvement schemes as part of the overall capital improvement programme and also the installation of enhanced pressure control to develop a calm network and smarter infrastructure.

Included within the PC21 Business Plan is the strategy to trial innovative technologies. During 2021/22, NI Water put in place contracts for satellite imagery and acoustic loggers and have engaged with suppliers regarding the potential to trial other technologies. In 2022/23 innovation trials continued including the use of imagery analysis from light aircraft and the deployment of leak detection dogs.

NI Water has also undertaken a development output to target the renewal of mains based on leakage. The construction of the first batch of identified mains has commenced with around 60% of these being completed by March 2023. Analysis of the benefits of this strategy of mains renewal commenced post-construction and will continue throughout the PC21 period.

For reference, the table below states the variables/parameters which may impact upon the variance in individual water balance component calculations.

	AIR23	AIR22
HDF (hrs)	23.2	23.2
UNHH consumption (m3/yr)	196.78	183.67
PCC MUR (%)	5.75	5.75
HH occupancy (nr)	2.50	2.51
NHH MUR (%)	5.75	5.75
SPL (MI/d)	38.51	38.51
HH night use allowance (l/p/hr)	2.64	2.64
NHH night use allowance (l/p/hr)	Dynamic (20.78)	Dynamic (20.78)
Per Capita Consumption (l/hd/d)	143.02	150.90

Projects regarding the review and analysis of the parameters listed in the table above continues with consideration and strategic planning required regarding the application and impact of updates in light of new and evolving water industry leakage reporting guidance.

Line 1 – Billed Measured Household

There are no billed measured households and the value is therefore zero.

Line 2 – Billed Measured Non-Household

The reported value for water delivered to non-households has increased from 126.19 MI/d in AIR22 to 131.32 MI/d in AIR23.

In AIR15, after a full review, the Gross Measured Consumption Report (GMCR) was revised, amended and recoded to reflect the changes in data handling and the evolution of the metering and property company datasets which resulted in the variance between the GMCR and the Principal Statement calculations closing within the recommended 1%. The variance between GMCR and the Principal Statement has closed to 0% since the 2014/15 reporting year. The GMCR is used to derive the billed measured non-household consumption as stated in Table 10 Line 2. Similar to AIR22, the GMCR utilises metering data from the RAPID billing system. This volume does not include test meters that are not billed, trade effluent volumes, free supplies or NI Water supplies which are included under water taken unbilled. There was an increase in measured consumption in AIR23 of 5.0 MI/d. This increase is likely due to the incremental lifting of restrictions imposed on a number of measured non-households as a result of COVID19.

A non-household meter under-registration (MUR) value of 5.75% has been added to billed measured non-household use. WRc undertook a study during AIR21 to review the MUR figure for NI Water which is now 5.75%.

No allowance for underground supply pipe leakage has been added to this value as the measured non-households are all externally metered and therefore the billed consumption already includes underground supply pipe leakage (however, the figure for underground supply pipe leakage for measured non-households has been estimated and is part of total leakage in other lines of the table).

The confidence limit of 10% on this component has not been changed and is still considered to be appropriate.

Line 3 – Billed Measured

This is the summation of lines 1 and 2.

Line 4 – Billed Unmeasured Household

The reported value for Billed Unmeasured Household volume for AIR23 is 324.48 MI/d. This figure reflects a decrease of around 19 MI/d from the AIR22 value of 343.11 MI/d.

The Billed Unmeasured Household volumes have been calculated by multiplying the average PCC figure for NI Water by the unmeasured household population. The method and sources of information are consistent with previous AIR returns. Similarly the source of the PCC figure is generated from the NI Water domestic consumption monitor. The household population figure is sourced from the Northern Ireland Statistics and Research Agency (NISRA) 2020. Adjustments are made to this household population figure to account for:

- Non-Household Population – Sourced from the most recent NISRA 2020 based population projections in alignment with Table 7.
- Unconnected Properties Population – The number of unconnected properties has been provided within NI Water by Rapid. The population of unconnected properties is determined by multiplying the assessed average occupancy from the NIHE Housing Condition Survey report by the number of unconnected properties.
- Farm Population – The population of farms is included as non-household use. The population is calculated as the number of farms multiplied by the average occupancy rate from NISRA. The number of farms is sourced from RAPID (NI Water's Billing System). The assessment takes into consideration farm properties that became void during 2022/23 but will have billed consumption associated with them.
- PCC Night Use Allowance Assessment

Underground Supply Pipe leakage has been applied to the billed unmeasured household volume component of this calculation.

A meter under-registration factor of 5.75% has been applied to this total volume. The previous percentage of 7.39% was assessed by WRc which was specific to NI Water's domestic consumption monitor meters and which remained constant throughout PC15. NI Water consider it appropriate to align the PCC MUR figure with the NHH MUR however will undertake a study to reassess this value during PC21.

Since AIR19, we have been investigating the use of fast-logging technology with the installation of new meters and equipment on a number of our PCC sites. This technology has allowed NI Water to determine a more accurate and dynamic household night-use value.

During the reporting year it is usual to undertake a comprehensive door to door survey covering approximately 20% of properties within the Domestic Consumption Monitor Areas. Due to the government lockdowns, NI Water considered it prudent to postpone the survey programme and re-establish surveys when door to door customer contact was considered appropriate. Surveys were re-established in the last quarter of AIR22 with approximately 15% of properties being surveyed. In AIR23, 34% of PCC site households were identified for survey in order to address the survey shortfall of previous years.

The occupancy rate within the PCC sites is calculated for AIR23 at 2.35. The NISRA occupancy rate for Northern Ireland is 2.50 for 2022/23. A figure of 1.5% continues to be applied to allow for the 'Hawthorne Effect' and is consistent with previous AIR submissions.

The confidence limit of 10% on this component has not been changed and is still considered to be appropriate.

In order to better understand the seasonal consumption patterns within the company's rural household stock, NI Water have installed a number of PHC monitors in rural locations with the expectation of accounting for atypical household demand in rural areas. We continue to investigate the benefits of calculating the billed unmeasured household value through the adoption of PHC sites. We have engaged our leakage management consultant, RPS, to review best practice across the other GB water companies with a view to aligning industry methodologies.

Line 5 – Billed Unmeasured Non-Household

The reported value for Billed Unmeasured Non-Household for AIR23 is 5.73 MI/d. The value reported in AIR22 was 5.14 MI/d. NI Water has continued with a programme of meter installation of unmeasured non-household properties. There has been an increase in this reported figure and is similar to the increase in calculated consumption for measured non-households.

As unmeasured non-households have an allowance that has been estimated from metered non-households therefore underground supply pipe leakage has not been added to the occupied property component. Supply pipe leakage has been calculated for the void property component and included in this figure. A non-household company specific MUR value of 5.75% was applied for AIR23.

The confidence limit of 15% on this component has not been changed and is considered to be appropriate.

Line 6 – Billed Unmeasured

This is the summation of lines 4 and 5.

Lines 7 to 30 – Water Delivered Components

Line 7 – Estimated Water Delivered Per Unmeasured Non-Household

The post MLE figure for estimated water delivered per unmeasured non-household for AIR23 is 601.32 l/prop/d. The figure reported for AIR22 was 564.65 l/prop/d.

The allowance for unmeasured non-household properties for AIR23 is 196.78 m³/prop/yr, an increase from 183.67 m³/prop/yr reported in AIR22.

Line 7a – Estimated Water Delivered Per Unmeasured Household

The post MLE figure for estimated water delivered per unmeasured household for AIR23 is 419.39 l/prop/d. The figure reported for AIR22 was 447.49 l/prop/d.

The confidence limit of 10% on this component has not been changed and is still considered to be appropriate. A confidence grade of B3 has been applied to this calculation.

Line 8 – Per Capita Consumption (Unmeasured Household – Excluding Supply Pipe Leakage)

The post MLE PCC figure for AIR23 is 160.17 l/hd/d. The figure reported for AIR22 was 171.67 l/hd/d.

NI Water continues to employ domestic consumption monitors set up specifically to monitor unmeasured household consumption. These sites are small (average size of 48 properties), permanently bounded, monitored for leakage, and flows into them are recorded by meters.

The average PCC figure (pre-MUR) has been calculated as 143.02 l/hd/d. This assessment is based on 12 months consumption data from 1 April 2022 to 31 March 2023. This compares to a figure of 150.90 l/hd/d for AIR22.

Fast-logging has been installed on a number of PCC sites reporting 1-minute logged averages. The assessed domestic consumption on these sites therefore reflects the 1-minute data.

During previous high demand events and also noted as a result of atypical household demand analysis throughout the government lockdown restrictions, NI Water continues a review to determine the most appropriate methodology to calculate household consumption.

We have engaged our leakage management consultant, RPS, to review best practice across the other GB water companies with a view to aligning industry methodologies. This review will include appropriate monitoring of households particularly in rural and remote rural areas.

A company specific MUR value of 5.75% has been used for unmeasured PCC. NI Water consider it appropriate to align the PCC MUR figure with the NHH MUR however will undertake a study to reassess this value during PC21.

The confidence limit of 10% on this component has not been changed and is still considered to be appropriate. A confidence grade of B3 has been applied to this calculation.

Line 9 – Per Capita Consumption (Measured Household - Excluding Supply Pipe Leakage)

There are no measured household supplies in NI Water; therefore no value has been input against this line.

Lines 10 to 13 – Underground Supply Pipe Leakage

For PC15, NI Water engaged their Leakage Management Services consultant, RPS, to review the underground supply pipe assessment which has resulted in the reduction of total supply pipe leakage to 39.91 MI/d from 46.31 MI/d during PC10.

During PC21, NI Water will review its SPL figure annually and for AIR22, SPL was calculated at 38.51 MI/d. The SPL review for AIR23 reports a similar value to AIR22 however, with an increase in reconciled leakage of 6.7 MI/d in AIR23 and a static SPL value, NI Water will review the customer SPL calculation methodology during AIR24. SPL accounts for approximately 24% of total leakage.

The total volume of Underground Supply Pipe Leakage was assessed using the recommended methodology contained in the UKWIR report 'Towards Best Practice for the Assessment of Supply Pipe Leakage' and based on 2022/23 company data. However, NI Water consider that the impact of the extreme winter weather and the continued recovery into the AIR24 reporting year is still to be fully realised on customer side leakage. The assessed SPL unit values for unmeasured and measured properties are 44.85 & 22.43 l/prop/d respectively.

Work previously undertaken, utilising Ofwat published data, indicated that the majority of the water companies in England and Wales estimate the underground supply pipe leakage on externally measured properties to be approximately half that of internally measured and other properties. NI Water has continued to adopt this assumption. In NI Water, the

unmeasured non-household use is based on the measured non-household use. Therefore this assumption will also be applied to the unmeasured non-household.

It should be noted that the trend over recent reporting years has shown that the number of unreported customer side leakage defects, resulting in the issue of a Leak Notice, continued to increase since the last SPL review utilising 2012/13 base data and levelling off since 2018/19. In AIR23 the number of issued leak notices was consistent with the previous year.



Lines 14 to 15 – Meter Under-Registration

During AIR21 WRc undertook a study to review the measure non-household MUR figure for NI Water which concluded with a figure of 5.75%. For AIR23, NHH MUR has remained at 5.75% and it is proposed to review this again during the PC21 period. Furthermore, NI Water consider it appropriate to align the PCC MUR figure with the NHH MUR however we will undertake a study to reassess this value during PC21. The MUR value applied to the unmeasured household consumption is 5.75%.

Since AIR19, we have been investigating the use of fast-logging technology with the installation of new meters and equipment on a number of our PCC sites and the creation of PHC sites. Analysis is ongoing as to the most appropriate use of fast-logging data and the potential to utilise PHC methodologies in the calculation of the billed unmeasured household component. This review will likely lead to a change in methodology for the calculation of billed unmeasured households which will be documented fully and will include an update of an appropriate MUR value.

Line 16 – Distribution System Operational Use

The reported value of Distribution System Operational Use (DSOU) for AIR23 is 2.84 MI/d. The value reported for AIR22 was 3.27 MI/d. This calculation is consistent with the AIR22 methodology.

The confidence limit of 25% on this component has not been changed and is considered appropriate.

Lines 17 to 19 – Water Taken Unbilled

The reported Water Taken Unbilled figure of 17.93 MI/d in AIR23 has increased from the value of 11.10 MI/d in AIR22.

The increase was observed to be 4.8 MI/d across measured and unmeasured wastewater treatment works and wastewater pumping stations and also a 1.5 MI/d increase from other 'DRD Supplies'.

The methodology used to estimate each category within Water Taken Unbilled remains consistent with AIR22.

The confidence limit of 25% on this component has not been changed and is considered appropriate.

Line 20 – Water Delivered (Potable)

All potable water supplied by NI Water is calculated as the sum of lines 3, 6 and 19.

Line 21 – Water Delivered (Non-Potable)

There are no non-potable supplies to NI Water customers.

Line 22 – Water Delivered (Non-Standard Rates: Potable)

There are no non-standard rates for potable supplies to NI Water customers.

Line 23 – Water Delivered (Non-Standard Rates: Non-Potable)

There are no non-standard rates for non-potable supplies to NI Water customers.

Line 24 – Distribution Losses

Distribution Losses for NI Water are calculated by subtracting Lines 16 (DSOU) and 20 (Water Delivered) from Line 26 (Distribution Input). Distribution Losses for AIR23 are estimated to be 123.79 MI/d. This is an increase on the AIR22 figure of 117.13 MI/d.

NI Water consider that the impact of the extreme winter weather and the continued recovery into the AIR24 reporting year is still to be fully realised regarding customer side leakage. We will review the customer SPL calculation methodology during AIR24. Any change in SPL will impact the reported distribution losses.

Line 25 – Total Leakage

Total leakage is the sum of distribution losses and underground supply pipe leakage. The reported figure for total leakage for AIR22 was 155.64 MI/d. The reported figure for AIR23 is 162.30 MI/d.

Total leakage is also calculated using an MNF methodology. For AIR22 the reported pre MLE MNF method leakage was 152.24 MI/d. The figure reported for AIR23 is 159.64 MI/d and equates to an increase in BU leakage of 7.4 MI/d.

NI Water has an extensive DMA network (approx. 1150 DMAs) covering 98% of all properties in Northern Ireland. All DMAs are monitored and exporting 15 minute flow data into corporate software systems and for leakage analysis. Approximately 93% of these DMAs are now monitored with electromagnetic meters with a direct link to the company telemetry system. The remaining DMAs are monitored by utilising data loggers attached to mechanical meters, and over the last few years logger data has migrated from GSM to GPRS communication technology. The GPRS loggers have an automatic link to the company's telemetry system and are programmed to provide data multiple times per day. NI Water are configuring the alarm capability of these loggers.

DMA minimum night flows (MNF) continue to be determined using a 20th percentile method.

Minimum night flows are recorded on a daily basis.

NI Water has also engaged RPS to undertake a review study to determine the benefits of moving the billed unmeasured household calculation from PCC to PHC. This would better align the calculation to that of GB water companies and with best practice and would provide evidence of geographic and seasonal demand variances within NI Water. Previous commentaries have discussed that the PCC monitored property sites may not be fully representative of households within rural and remote rural areas. Analysis is ongoing as to the most appropriate use of fast-logging data and this will likely lead to a change in methodology for the calculation of household night uses which will be documented fully.

The measured non-household night use allowance figure for AIR13 was 8 l/prop/hr as documented in 'Managing Leakage', however as stated in the AIR14 commentary, Netbase has become the leakage reporting tool for AIR14 onwards which utilises an integrated night use model embedded within Netbase which was developed based on the best practice as outlined in the UKWIR Report 'Estimating Legitimate Non-Household Night Use Allowances' for AIR10. This model was calibrated using approximately 1000 customer datasets and dynamically assesses night use based on consumption and consumer industry type. For AIR23 the measured non-household night use figure is 20.8 l/prop/hr.

During PC21, the installation of loggers across a statistically representative sample of non-households will allow the dynamic and seasonal calculation of non-household night uses. This will be consistent with current industry best practice.

According to the guidance provided in the reporting requirements, this line calculates total leakage by adding Distribution Losses (line 24) to the various calculated SPL components for MHH, UHH, MNHH, UNHH & voids. For PC21 on request of the Reporter, NI Water has commenced an annual review of customer supply pipe leakage. This is a change in reporting from PC15 where the Utility Regulator requested that SPL should remain constant throughout the PC15 period.

For AIR23, SPL is reported at 38.51 MI/d and equates to 44.85 l/prop/d.

It should be noted that the trend over recent reporting years shows that the number of unreported customer side leakage defects, resulting in the issue of a Leak Notice, has increased by 52% since the SPL review utilising 2012/13 base data.

NI Water's service reservoir leakage and trunk main leakage remains constant at 4.53 MI/d and 13.66 MI/d respectively. NI Water has continued to develop a company specific assessment for both trunk main and service reservoir leakage based on a flow balance methodology. This is consistent with the recommendations of the Reporter and Utility Regulator. NI Water continues to investigate potential leakage within these audits and is undertaking a number of proactive steps to identify and resolve leakage and calculation issues. However, NI Water consider it prudent to fully investigate the audits with perceived leakage to understand the resource economics and uncertainty associated with flow balances for trunk mains and service reservoirs.

Over the PC21 period, NI Water propose to introduce a phased reporting of trunk main and service reservoir flow balance audits into the leakage calculation.

A 10% error estimate has been applied to BU Leakage in the MLE calculation following the implementation of Netbase for PC13. This reflects the continued improvement in data quality resulting in the reduction of the error estimate from 15% reported in AIR13.

During PC21, and with the deployment of an upgraded Leakage Management Software, NI Water will continue to develop the leakage calculation to become more dynamic. This strategy will develop in parallel with trialling a number of innovations throughout PC21.

Line 26 – Distribution Input

The distribution input figure for AIR23 is calculated as a post MLE figure of 606.09 MI/d. The distribution figure for AIR22 was 605.94 MI/d.

The company specific confidence interval for distribution input for AIR23 remains at 2.1% and is unchanged from AIR22.

The method of reporting and calculating the company distribution input figure remains consistent in that it is based on a definitive number of input meters. As in previous years, NI Water has continued with an annual programme of calibration of DI meters.

In August 2022, NI Water introduced a new borewell supply at Moneymore SR. This new source can supply approximately 0.6 MI/d.

In line with the guidance provided, details of the distribution input for each of the PPP Water Treatment Works site is as follows:

	pre-MLE (MI/d)	post-MLE (MI/d)
Ballinrees	29.61	29.52
Castor Bay	115.15	114.82
Dunore Point	118.31	117.97
Moyola	15.27	15.22
Total	278.34	277.53

Line 27 to 28 – Bulk Supply Imports / Exports

There are no bulk imports of water to NI Water. There is one small import from the Republic of Ireland which supplies 3 properties.

There are 77 small exports to the Republic of Ireland. These exports are predominately individually metered customers and these meters are read and billed through RAPID in a category known as cross border supplies. This figure is included in the metered non-household consumption category.

The post MLE volume amounts to 0.44 MI/d and includes an MUR adjustment of 5.75%.

Line 29 – Water Treated At Own Works to Own Customers

With the exception of the 77 small exports above, all water treated at its own works is used by NI Water's own customers. The post MLE distribution input volume amounts to 606.09 MI/d and deducting the cross border exports the volume of water treated at NI Water's own works to its own customers is 605.65 MI/d.

Overall Water Balance

AIR23 - Water Balance						
NIW	Pre MLE (mld)	Error estimate (%)	Confidence Range (mld)	% of total	MLE Adjustment (mld)	Post MLE (mld)
Billed Measured HH	0.00	10%	0.00	0.0%	0.00	0.00
Billed Measured NHH	129.57	10%	167.89	10.5%	1.75	131.32
Billed Unmeasured HH	314.19	10%	987.14	61.8%	10.29	324.48
Billed Unmeasured NHH	5.72	15%	0.74	0.0%	0.01	5.73
SPL	38.51					38.51
DSOU	2.83	25%	0.50	0.0%	0.01	2.84
Water Taken Unbilled	17.73	25%	19.64	1.2%	0.20	17.93
Sum of components	591.17					606.09
Distribution input	607.84	2%	167.63	10.5%	1.75	606.09
Top Down Leakage	176.31					
BU Leakage	159.64	10%	254.64	15.9%	2.66	162.30
Imbalance (mld)	16.67			100.0%		
% Imbalance	2.74%					482.31

Table 1: Water Balance

The Water Balance produces an overall imbalance of 16.67 MI/d, (2.74%). The imbalance reported for AIR22 was 23.94 MI/d, (3.94%).

It is considered that in applying the confidence grade in accordance with the guidance notes contained in Table 10 of the NIAUR Annual Information Return Reporting Requirements and Definitions Manual 2023, the confidence grade applied to the NI Water's water balance for AIR23 is B2. The confidence level for the overall water balance for AIR22 was B2.

Confidence Grades

All components in the water balance are subject to errors to a greater or lesser extent, and as a method of comparing the accuracy and robustness of water balance components, the Utility Regulator uses an Alpha-numeric confidence grading system consisting of reliability bands (A to D) and Accuracy Bands (1 to 6).

NI Water adopted this approach a number of years ago and the current confidence grading for the water balance are shown in Table 2 below.

Line 7 – The Unmeasured Non-household Water Delivered confidence grade remains a B4 for AIR23.

An error estimate of 15% has been applied to this component in the MLE calculations.

Line 7a – Unmeasured Household Water delivered has been assigned a confidence grade of B3. This remains unchanged from AIR22.

Line 8 - Unmeasured Household Per Capita Consumption has a confidence grade of B3. This component has been calculated using the company's own consumption monitor data and remains unchanged from AIR22.

Line 25 - Total Leakage has a confidence grade of B3 for AIR23 and is consistent with AIR22.

A 10% error estimate has been applied to BU Leakage in the MLE calculation following the implementation of Netbase for PC13. This reflects the continued improvement in data quality resulting in the reduction in error estimate from 15% reported in AIR13.

Line 26 - Distribution Input has a confidence grade of B2. The sum of components and the distribution input balance to less than 5%.

A 2.1% error estimate has been applied to DI in the MLE calculation.

Line 30 - In accordance with the definition provided by the Utility Regulator the overall Water Balance has a confidence grade of B2 in AIR23.

It is considered appropriate that the confidence grade for AIR23 is B2, as the water balance components reconcile with measured distribution input to greater than 2% and less than 5%. Similar to AIR22, Bottom Up leakage is estimated with over 80% of properties continually monitored through night line analysis (recorded more than 20 times per year) and sample flow balance audits have been undertaken on service reservoirs and trunk mains.

Table 2 Water Delivered Components Confidence Grades

Component	Reliability Bands				Accuracy Bands						
	A	B	C	D	1 <1%	2 1-5%	3 5-10%	4 10-25%	5 25-50%	6 50-100%	X
Unmeasured Non-Household Water Delivered (l/prop/d)											
Unmeasured Household Water Delivered (l/prop/d)											
Unmeasured Household Per Capita Consumption (l/head/d)											
Total Leakage (Ml/d)											
Distribution Input (Ml/d)											
Overall Water Balance											

Lines 31 - Security of Supply

Security of Supply is discussed in Table 10a.

NORTHERN IRELAND WATER LIMITED - ANNUAL INFORMATION RETURN

ANNUAL INFORMATION RETURN - TABLE 10A NON FINANCIAL MEASURE
SECURITY OF SUPPLY INDEX - PLANNED LEVEL OF SERVICE (TOTAL)

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Water resource zone	WAFU (EA definition) (M/d)	Bulk imports (M/d)	Bulk exports (M/d)	Dry year distribution input (M/d)	Reporting year distribution input (M/d)	Dry year available headroom (M/d)	Target headroom (M/d)	Surplus/deficit (M/d)	Percentage surplus/deficit (M/d)	Zonal population	Percentage of total population with headroom deficit	Zonal index (%age deficit ² x % population affected x 100)	Security of supply index
North	107.35	0.00	0.00	74.18	75.96	33.17	2.86	30.31	0.39	257,277	0.00	0.00	
West	38.95	0.00	0.00	39.02	39.96	-0.07	1.16	-1.23	-0.03	101,238	0.05	0.00	
Central	32.68	0.00	0.00	28.56	29.25	4.12	1.06	3.06	0.10	86,258	0.00	0.00	
East	301.50	0.00	0.00	241.13	246.93	60.37	8.06	52.31	0.21	851,752	0.00	0.00	
South	157.75	0.00	0.00	140.83	144.22	16.92	5.54	11.38	0.08	367,647	0.00	0.00	
North East	84.75	0.00	0.00	42.27	43.29	42.48	4.69	37.79	0.80	178,385	0.00	0.00	
South West	36.10	0.00	0.00	27.73	28.40	8.37	1.33	7.04	0.24	69,532	0.00	0.00	
Total	759.08	0.00	0.00	593.71	608.00					1912,090		0.00	99.00

Table 10a (i) – Non Financial Measures - Security of Supply Index – Planned level of service

NI Water published its Water Resource and Supply Resilience Plan (WR & SR Plan) in June 2020. The WR&SR Plan takes 2014/15 as its base year and has a planning horizon up to 2042/43 for the Water Resource Management element. The Security of Supply Index (SoSI) calculated for AIR22 is based on Ofwat's letter RD 03/02 and is formulated from the information presented in the WR & SR Plan. It should be noted, prior to AIR 21, previous returns relating to SOSI were based on the 2012 Plan.

There have been changes to a number of the inputs in the calculation, based on the latest WR&SR Plan compared to previous, and these are detailed below:

1. The 2020 WR&SR Plan has seen the creation of two additional WRZs, increasing from 5 WRZs to 7 WRZs:
 - a. The 2012 West WRZ has been split into two zones, the West WRZ and the South West WRZ. The reason for this split is the lack of connectivity across the new WRZ boundary resulting in differing levels of risk between the zones.
 - b. The 2012 South and East WRZs have been split into 3 zones (South, East and North East) which better reflect the operation of the supply system.
 - c. Supply to Belfast has been combined into the new East WRZ as there is extensive interconnectivity in this area.
 - d. The selection of the North East/East resource zone boundary is based on the limited connectivity between the Water Supply Zones (WSZs) along this boundary. The exception is the bulk transfer from Dunore Point WTW, in the North East Zone, to Hyde Park Service Reservoir (SR), in the Eastern Zone. However, as this provides a distinct and measured boundary point this was considered an appropriate border.
 - e. The selection of the South/East boundary is based on the lack of interconnectivity between the WSZs along this line. While both zones have supplies from Castor Bay WTW, they both have their own dedicated trunk mains direct from the WTW.
 - f. Rathlin Island has been included in the North WRZ as in the event of a water shortage on Rathlin, water from the North WRZ is tankered in to meet the shortfall.
2. The latest Water Available for Use (WAFU) figure has decreased from the 2012 plan by 13.97MI/d from 773.05MI/d to 759.08MI/d. This is due to a number of reasons including an increase in outage allowance from 2% to 5% and the decommissioning of Camlough WTWs.
3. The dry year uplift factor has decreased in the latest plan from 7% in 2012 to 1.7% in 2020.

The total population figure used within the SoSI calculation has been confirmed to correspond with the population figure used in AIR 23 Table 7.

As part of previous reporters Recommendations, it stated that *'Recommend as part of the WMRP update the Company continues to investigate if data exists to further refine the normal year uplift.'*

To that end the outputs from the WR&SRP outputs have been used in the calculation of the 'dry year uplift factor.' The 'dry year uplift factor' refers to the % uplift that should be applied to average demand (MI/d) in a normal weather year to estimate the average demand (MI/d) in a dry weather year. Three approaches were assessed:

- Increased Summer Demand

- Increased Summer PCC
- Monthly weather-demand modelling

The Monthly Weather-Demand Model was the preferred model. This statistical regression model was developed to produce a relationship between monthly distribution input and weather parameters for the period April 2008 to March 2015 for which monthly regional demand data was available. A statistically very significant relationship was found between monthly demand and monthly average temperature and monthly total rainfall. However, the R-squared value (which measures the quantity of variance explained) by the model was 40%, and so the accuracy of the predictions may be poor.

The model was used to predict the monthly demands that could have been expected now in the event of 1995/96 weather (the most dry and hot year on record). This suggested that summer demand would be 3.39% higher than the base demand, leading to an estimate of dry year uplift factor of 1.7% (i.e. half of 3.39%). In essence, Summer Demand would be 3.39% higher for DYAA than NYAA.

Based on analysis carried out on historical rainfall and temperature data from 1988 to 2023, 2022/23 is deemed as a “Warm & Dry” year as can be seen in Figure 1 below. The monthly demand weather model was populated with the outputs for 2022/23 and this estimates the average DI would be 2.35% lower in a dry year (like 1995/96) than in 2022/23. This was calculated, as the DI was 4.05% higher in 2022/23 than would be expected in NYAA.

Therefore the Dry Year Uplift Factor then would be 1.7% (Difference in DYAA TO NYAA) – 4.05% (Difference in 2022/23 to NYAA) which equates to -2.35% ($1.7\% - 4.05\% = -2.35\%$ so 0.9765). Thus, an uplift factor of 0.9765 has been used in the SoSI 23 calculation.

It should be noted that 2022/23 is deemed as a “Warm & Dry” year and the average DI for 2022/23 is 608MI/d a slight decrease of 0.04% from 2021/22 (608.4MI/d).

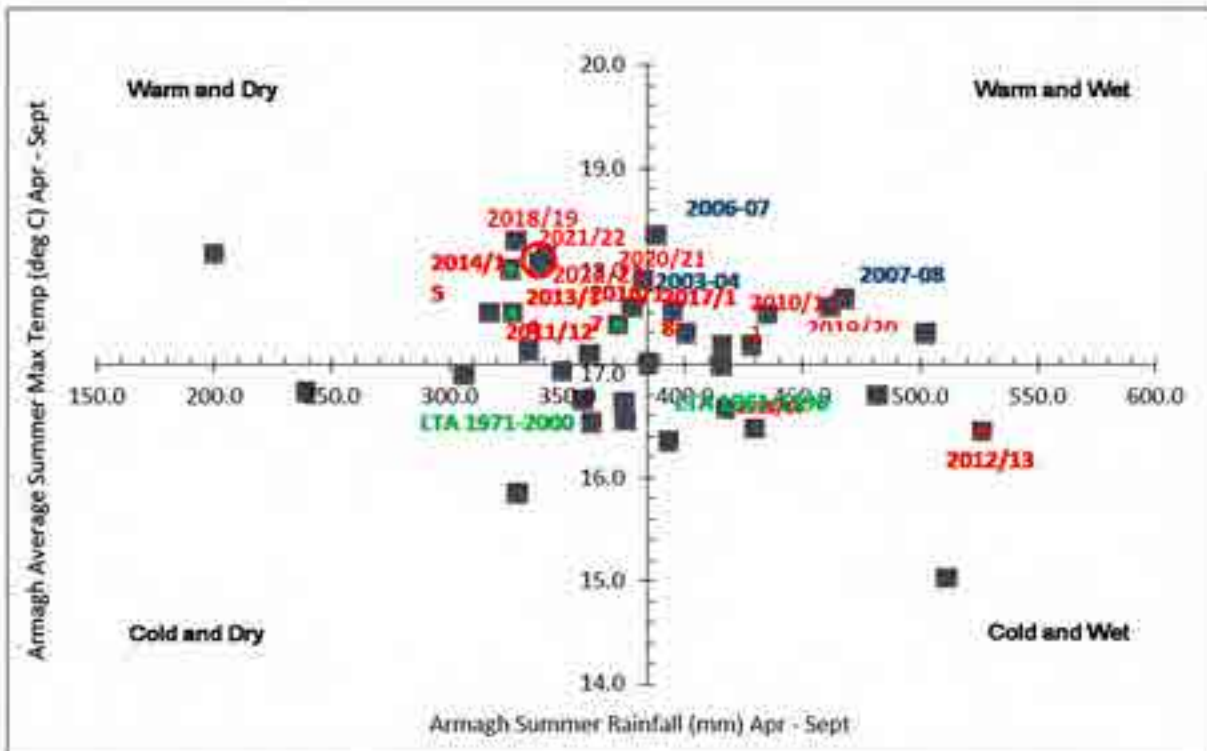


Figure 1 – Historical rainfall & Temperature when rounded down Data Summer (April-September 2022)

The overall SOSI is **99%** when rounded down (99.9951 Actual). This is a decrease from AIR22 where the reported figure was 100%. This was due to a small deficit of -1.23MI/d in the West Water Resource Zone. Although the overall DI for 2022/23 is lower than 2021/22, the DI for the West Water Resource Zone is slightly higher than previous, 39.96MI/d compared to 38.15MI/d previously, therefore there is a slight deficit calculated within the West Zone due to this higher DI during 2022/23.

It should be noted given the risk within the West Water Resource Zone, based on the recent SOSI analysis, that the most recent WR & SR Plan did indicate a small deficit within the Zone under a Dry Year Critical Period (3.5MI/d) and a new 17MI/d Trunk Main to transfer water from the North Zone to the West Zone has received funding and is planned to be completed in PC21. This trunk main will resolve any future issues within this Zone.

In addition, since the development of the latest Water Resource & Supply Resilience Plan there is the ability to transfer up to 1MI/d from the South West Zone to the West Zone, which would increase the WAFU for the West Zone if recalculated today.

Table 10a (iii) – Non Financial Measures - Security of Supply Index – Critical Period (TOTAL)

The security of supply index has been calculated based on the outputs from the Water Resource & Supply Resilience Plan (WR&SRP) 2020.

In previous years, the assumption by NI Water was that a SOSI – Critical Period has not been required. The previous justification has been that:-

The supplies available to NI Water are dominated by abstractions from Lough Neagh, which can be considered an infinite hydrological storage resource. In addition, recent demand data does not suggest that there is a strong peak demand driver in Northern Ireland. For these reasons, it is not appropriate or necessary to consider the critical period scenario for Northern Ireland, because this is not the primary driver for investment to maintain the supply demand balance. On this basis, there has been no need for NI Water to develop a SOSI calculation for a critical period.

As part of the Reporters Recommendations for AIR15, he stated - *Recommend the Company reassess the need for a Critical Period SOSI during its preparation of WRMP17.* As highlighted previously as part of the 2020 Water Resource and Supply Resilience Plan, critical periods were included within the analysis, and it was felt a critical period SOSI should be able to be calculated. This is now the case however given that the Water Resource and Supply Resilience Plan is currently being updated the intention is to await the outcomes of this given the likely changes to the supply/demand calculations and the impact on any critical SOSI calculation.

NORTHERN IRELAND WATER LIMITED - ANNUAL INFORMATION RETURN

ANNUAL INFORMATION RETURN - TABLE 11 NON FINANCIAL MEASURE:
WATER SERVICE ACTIVITIES (NI Water Only)

DESCRIPTION	UNITS	DP	1	2	3	4	5	6	7	8	9	10	11	12
			REPORTING YEAR 2015-16 CG	REPORTING YEAR 2016-17 CG	REPORTING YEAR 2017-18 CG	REPORTING YEAR 2018-19 CG	REPORTING YEAR 2019-20 CG	REPORTING YEAR 2020-21 CG	REPORTING YEAR 2021-22 CG	REPORTING YEAR 2022-23 CG	REPORTING YEAR 2023-24 CG	REPORTING YEAR 2024-25 CG	REPORTING YEAR 2025-26 CG	REPORTING YEAR 2026-27 CG
A ASSET BALANCE AT APRIL 1														
1 Total length of mains	km	2	26,712.44 B3	26,728.83 B3	26,778.15 B3	26,837.45 B3	26,958.40 B3	27,002.82 B3	27,014.82 B3	27,086.39 B3				
B CHANGES DURING REPORT YEAR														
2 Mains renewed	km	2	105.24 A2	161.29 A2	120.55 A2	154.66 A2	133.94 A2	96.65 A2	91.60 A2	90.86 A2				
3 Mains relined	km	2	0.00 A1	0.00 A1	0.00 A1	0.00 A1	0.00 A1	0.00 A1	0.00 A1	0.00 A1				
4 Mains cleaned (total)	km	2	1,191.68 B3	1,665.69 B3	2,008.61 B3	2,257.19 B3	2,300.31 B3	2,189.20 B3	2,223.75 B3	2,240.24 B3				
6 New mains	km	2	78.51 B2	75.22 B2	92.43 B2	83.91 B2	81.68 B2	64.52 B2	78.94 B2	101.64 B2				
6a Total length of new, renewed or relined mains	km	2	181.75 B2	236.51 A2	212.98 A2	238.57 A2	215.62 A2	161.57 A2	170.54 A2	192.50 A2				
6b Length of new, renewed or relined mains delivered under the watermain rehabilitation programme	km	2	116.92 A2	172.27 A2	126.00 A2	166.52 A2	149.33 A2	104.13 A2	101.62 A2	123.33 A2				
7 Mains abandoned and other changes	km	2	105.51 A2	167.55 A2	124.24 A2	158.49 A2	135.13 A2	89.05 A2	74.61 A2	112.91 A2				
8a Lead communication pipes replaced as a consequence of water quality sample failures	nr	0	37 B2	44 B2	43 B2	35 B2	18 B2	17 B2	37 B2	0.00 B2				
8b customers notifying NI Water that they are replacing their lead supply pipe	nr	0	703 B2	599 B2	574 B2	562 B2	455 B2	324 B2	470 B2	385.00 B2				
8c Opportunistic lead communication pipes replacement undertaken under the watermain rehabilitation programme or during burst service pipe repairs	nr	0	660 B2	1801 A2	76 B3	75 B3	41 B3	28 B3	22 B3	34.00 B3				
8d Lead communication pipes replaced under the proactive lead replacement programme	nr	0	1,922 B2	1,867 A2	1,767 A2	2,070 A2	1,781 A2	1,675 A2	1,864 A2	1,873.00 A2				
9 Total lead communication pipes replaced	nr	0	3,322 B2	4,311 A2	2,460 A2	2,742 A2	2,295 A2	2,044 A2	2,393 A2	2,302.00 A2				
10 Communication pipes replaced - other	nr	0	3,918 B3	5,608 B3	3,769 B3	4,232 B3	5,664 A2	3,739 A2	2,861 A2	2,896.00 A2				
11 Mains bursts per 100km	nr	0	74 B3	80 B3	91 B3	92 B3	82 B3	88 B3	92 B3	92 B3				
C ASSET BALANCE AT MARCH 31														
12 Total length of mains	km	2	26,728.83 B3	26,778.15 B3	26,837.45 B3	26,958.40 B3	27,002.82 B3	27,014.82 B3	27,086.39 B3	27,140.38 B3				
D DISTRIBUTION STUDIES														
13 Cumulative number of distribution zone studies completed	nr	0	71 A1	71 A1	71 A1	71 A1	71 A1	71 A1	n/a	n/a				
14 Distribution zone studies ongoing	nr	0	0 A1	0 A1	0 A1	0 A1	0 A1	0 A1	n/a	n/a				
15 Total distribution zones identified for study	nr	0	71 A1	71 A1	71 A1	71 A1	71 A1	71	n/a	n/a				
16 Cumulative % distribution zone studies completed	%	1	100.0 A1	100.0 A1	100.0 A1	100.0 A1	100.0 A1	100.0 A1	n/a	n/a				
17 Percentage population/properties - completed studies	%	1	100.0 A1	100.0 A1	100.0 A1	100.0 A1	100.0 A1	100.0 A1	n/a	n/a				
E WATER QUALITY COMPLIANCE MEASURES														
18 % overall compliance with drinking water regulations	%	2	99.83 A2	99.86 A2	99.88 A2	99.90 A2	99.90 A2	99.94 A2	99.88 A2	99.91 A2				
19 % compliance at consumers tap	%	2	99.74 A2	99.77 A2	99.81 A2	99.83 A2	99.84 A2	99.91 A2	99.82 A2	99.88 A2				
20 % iron compliance at consumers tap	%	2	98.40 A2	98.66 A2	98.85 A2	98.94 A2	98.89 A2	99.56 A2	99.35 A2	99.15 A2				
21 % Service Reservoirs with coliforms in >5% samples	%	2	0.00 A1	0.00 A1	0.00 A2	0.00 A1	0.00 A1	0.00 A1	0.00 A1	0.00 A1				
F NOMINATED WATER SERVICE OUTPUTS														
22 Completion of nominated trunk main schemes	nr	0	2 A1	1 A1	0 A1	0 A1	0 A1	1 A1	1 A1	1 A1				
23 Completion of nominated water treatment works schemes	nr	0	1 A1	0 A1	0 A1	0 A1	1 A1	1 A1	1 A1	3 A1				
24 Completion of nominated improvements to increase the capacity of service reservoirs and clear water tanks	nr	0	0 A1	0 A1	1 A1	0 A1	1 A1	1 A1	1 A1	0 A1				
G PC15 ADDITIONAL WATER SERVICE OUTPUT MEASURES														
25 Number of school visits	nr	0	277 A1	257 A1	219 A1	246 A1	229 A1	266 A1	299 A1	210 A1				
26 Number of other education events	nr	0	65 A1	64 A1	62 A1	66 A1	143 A1	12 A1	64 A1	63 A1				
H PC21 ADDITIONAL WATER SERVICE OUTPUT MEASURES														
27 Number of catchments where management plan recommendations have been delivered	nr	0							0 B3	3 A2				
28 Number of treatability studies completed	nr	0							0 A1	1 A1				

Table 11– Water Service Activities

Line 1 – Total length of mains on 1st April

This value has been extracted from the previous AIR submission.

Lines 2 to 10 - Changes during the reporting year

This document provides the commentary on the following tables and lines for NI Water and records the amount of capital and maintenance activity carried out in the report year 2022/2023 on water mains and communication pipes.

The figures for these lines were supplied respectively by:

- extracting and summarising the source output data of Projects Progress by sorting data from the NI Water CPMR System, in the “Water Infra by Projects” section for the period April 2022 to March 2023, (which are submitted/compiled monthly by the Asset Delivery Team (AD)).

(The April data was downloaded in mid-April 2023 but there were further updates on Comms pipes and missing repaired main on collapsed road at Whitepark Road).

The Water Production Line (Networks Water) Operations Team, on behalf of The Customer and Operations Directorate (C &OD), by extracting and summarising the source output data from their monthly reporting records and checking with colleagues.

Total Mains Activity Progress

Northern Ireland Water has delivered 192.50km of total mains activity in AIR 23, compared to 170.54km of total mains activity in AIR 22

(No relining has been carried out in this period).

Watermains Rehabilitation Progress against PC21 Target

The cumulative length of Watermains Rehabilitation pipelines completed to the end of PC21 Year 2 is 224.95km at the end of the AIR23 period against the 2-year FD Cumulative Target of 279.33km.

This Watermains Rehabilitation figure reported for AIR23 (123.33) is higher than the annual outputs for AIR 22 of 101.62km, however both years remain below the annual average PC21 target of 139.7km for PC21

The relatively low figure for Year 1 of PC21 was due to a number of factors including: availability of resources due to the draw from other utilities such as Gas, Telecoms and Irish Water, increases in material costs and more work focused in urban areas, which is generally slower to complete.

The figures above for the first two years of PC21 are both below the annual average target to be expected if we were to meet the 838km required for PC21(139.7 per annum).

Proactive Lead Replacements Total against PC21 Target

The PC21 year 2 sub programme 23 results showed 1,873nr completed (plus 1,864nr from Year 1 gives a running total of = 3,737nr lead pipes replaced as a result of the implementation of the proactive lead replacement programme.)

(The average PC 21 target per year = 1,844) x 2 (years) = 3,688nr

The PC21 Running Total is 3,737

This running total is on target to achieve the planned PC21 total

Summary of Mains Activity Figures for PC21

Activity Description	Total Return AIR22(km)	Total Return AIR23 (km)	PC21 TOTAL (km) Year 2
New Mains (WMRP)	22.68	32.91	55.59
Renewed Mains (WMRP)	78.94	90.42	169.36
Relined Mains (WMRP)	0	0	0
Total WMRP Activity	101.62	123.33	224.95
Nominated Trunk Mains (New)	0	9.36	9.36
Nominated Trunk Mains (Renewed)	0	0	0
Total Nominated Trunk Mains Activity	0	9.36	9.36
Sub Programme 23c and 23e Trunk Mains	3.74	5.27	9.01
Sub Programme 23c and 23e Distribution Mains	7.42	0.15	7.57
Total Sub Programme 23c and 23e	11.16	5.42	16.58
New Mains – within new Developments	56.26	53.95	110.21
Total mains within new Developments	56.26	53.95	110.21
1st Time Services – Serving New Developments	0	0	0
1st Time Services - Renewed	0	0	0
Total 1st Time Services	0		
Mains Development/Diversions - Renewed	1.5	0.44	1.94
Total New Development Activity	1.5	0.44	1.94
Total Mains Activity in the Period	170.54	192.50	363.04

Strategic Trunk Mains Progress for PC21 - Year 1

The total length of Nominated Strategic Mains funded under sub prog 5, is 9.36km, made up of:

- JL 807 Crescent Link 3.41km, JR 519 Whitespots Trunk Main 0.09km, JR 212 Belttoy Drought Scheme 0.8km, JP 702 Killyhevin to Cavanacross 1.9km and JR 524 Whitespots Greyabbey 3.16km

The total length of non-nominated trunk mains, (which are not funded under the Watermains Rehabilitation Budget but funded from Sub Programmes 23c and 23e), is 5.27km, mostly from the Stiles Way Project, Antrim.

It was not possible in the timeframe available, to verify if the approx. 0.8km of non-nominated watermains, related to the "Parkmore Scheme", was installed within this reporting period. This issue will be reviewed again for AIR 24 and clarified.

Line 2 - Mains renewed (km)

Line	Description	Units	DP	AD	AD CG	C&OD	C&OD CG	Total	Overall CG
2	Mains renewed	km	2	90.42	A2	0.44	B3	90.86	A2

Asset Delivery

- The Asset Delivery team has continued its method of reporting on renewed mains in line 2 to comply with the Regulator's Annual Information Return reporting requirements and definitions manual.
- The Asset Delivery Figure is made up of 90.42km of Watermains Rehabilitation
- This figure does not include first time services.
- Asset Delivery is the primary contributor to this information.
- The AD confidence grade (and therefore the line confidence grade)is A2

C&OD Networks Water

- C&OD Networks Water has continued to manage some smaller schemes, for example, social housing redevelopments and minor mains diversions or realignments.
- This confidence grade is assessed to be B3

The C&OD mains renewal work is usually very low volume as is the case here.

Continuing discussion and guidance are provided for the relevant Field Managers when providing this information.

The length recorded is generally in line with the last 5 year's average C &OD figure of 0.85km. Most of the workload relevant to this line is dependent on other bodies such as NIHE or Transport NI and is also customer driven. There is no set target for each year.

Overall Line Confidence Grade is A2 - The overall confidence grade is A2 due to the fact that the Asset Delivery return is nearly all of the total, with minimal C&OD input.

Line 3 - Mains Relined (km)

At present this activity is not carried out either by Networks Water or by Asset Delivery and the Confidence Grade is A1 as the total is 0.00km.

Overall Line Confidence Grade is A1 as the return is zero for both Asset Delivery and C&OD Networks Water.

There has been no change in the current mains relined figures in PC21 as this methodology is not currently used within NI Water. The Asset Delivery Team continue to review the value for money from the delivery of mains relining.

Line 4 - Mains Cleaned (km)

Line	Description	Units	DP	AD	AD CG	C&OD	C&OD CG	Total	Overall CG
4	Mains cleaned (total)	km	2	0.00	A1	2,240.24	B3	2,240.24	B3

Asset Delivery

This activity is not currently an activity carried out by the AD Team.

Watermains Conditioning is however being considered by NI Water as a value for money, way forward to Rehabilitate watermains which have good structural integrity but are contributing to poor water quality.

Confidence Grade A1

C&OD Networks Water

Detailed data for the reporting period was collated by the Water Production Line (Networks Water) Operational (WPL) Team using MWM system reports. As directed by the Regulator, repeat flushing of the same length of main has been discounted.

Work Orders are automatically generated at various frequencies and dispatched to Distribution Technicians in the field. This information is captured on the MWM system.

The recorded units are the total number of reactive fire hydrant flushing jobs plus the count of flushing MST's active on the Ellipse system, minus those flushing MST's which have not been performed a minimum of once in the report year. This has been converted from units to km using a revised factor of 0.317km per flushing.

(See Methodology statement for detail).

- The 2022/3 information return is: 7073no. flushings x 0.317km per flush = 2240.24kms.
The 7050 figure comprises a total count of 6751no. flushing MST's in Ellipse, minus 3no. flushing MST's identified as not having been carried out in the report year, plus 319no. reactive flushing jobs completed.

For AIR23, Maintenance Scheduled tasks (MST's), as part of the planned flushing programme, have continued to be implemented. The programme has been amended from the previous year only in that some frequencies of flushing have been reduced but locations remain generally the same. Some MSTs have been removed due to the on-going mains rehabilitation programme and others added as a consequence of repeat customer complaints or water quality sample failures.

The total length of main flushed is comparable to the average of the last 5 years figure of 2,245.97nr.

Confidence Grade B3

Although the total no. of reactive flushing jobs (319no.) may contain some repeat flushings, at the same location these are considered to be minimal and the Company considers the data collated for this line to be continually improving.

There is a notable decrease in the completed no. of reactive flushing's which may be linked to overall improvements in water quality standards and 'Calm Network' training previously completed by both Distribution Technicians and contractor's staff.

As per previous audit recommendations the number of flushings have been converted to km.

The number of flushings have been captured for the period 1st April 22 – 31st March 23 year using base information from MWM and then converted to km using the revised factor of 0.317.

The revised factor of 0.317km per flush is based on an increasing sample batch (401no. in total) being compiled throughout the year. Flushing details will continue to be added to the sample list and the applied factor revised as necessary throughout AIR 24.

Future Reporting

For AIR 24 NI Water will continue to use the established process for monthly reporting using MWM as a source for base information. The MST flushing programme is under continuous review with the addition and removal of MST's on an on-going basis and adjustments to the frequency of individual MST's. Data will continue to be collated in relation to reviewing the applied factor of 0.317km per flush.

Overall Confidence Grade = B3 as the cleaning has been exclusively carried out within C&O Directorate

Line 6 - New mains (km)

Line	Description	Units	DP	AD	AD CG	C&OD	C&OD CG	Total	Overall CG
6	New mains	km	2	47.69	A2	53.95	B3	101.64	B2

Asset Delivery

All Asset Delivery information is compiled from Asset Delivery contract management information monthly returns. This is an accurate measurement of the actual lengths of water mains laid, renovated or replaced, compiled from contractor's on-site records and joint measures with consultant site supervisors. The information is collated from each individual contract on a monthly basis and aggregated into an overall annual figure.

New mains calculation = 32.91km (Rehab) 9.36km (Nominated Mains) 5.27km from other Strategic Mains (Miscellaneous schemes but mostly Stiles Way) and 0.15km from collapsed Roadway at Whitepark Total = 47.69km

Asset Delivery Confidence Grade is A2. This figure is obtained from Monthly Reports in CMS and aggregated into an annual return.

C&OD Networks Water

Data for the period 1st April 22 – 31st March 23 was collated by the WPL Team from the Requisition and Construction Managers (R&C Managers) based in Developer Services (DS) function. When checked and confirmed the details were transferred onto a spreadsheet managed by the Water Business Unit. This figure primarily includes data for new mains laid in new housing developments throughout the year.

C&OD Networks Water (data provided by R&C Managers within DS) is the sole contributor for new mains laid in new housing developments.

This figure of 53.95km is comparable to the 5 year average figure of 55.41

C&OD Networks Confidence Grade is B2. This figure is comparable to the average of the last 5 years.

Future Reporting

For AIR 23 the WPL Team will continue to use the established process for monthly reporting using MWM as a source for base information.

The Overall Line Confidence Grade is B2 -This figure is arrived at by considering that the AD total is similar to the C&OD total. It is reasonable therefore to state that the CG assessment can be considered to be B2.

Line 6a: Total Length of new, renewed or relined Mains (km)

Line	Description	Units	DP	AD	AD CG	C&OD	C&OD CG	Total	Overall CG
6a	New renewed or relined mains	km	2	138.11	A2	54.39	B2	192.50	A2

This is the calculated sum of Lines 2, 3 and 6 the Asset Delivery Total

Overall Line Confidence Grade is A2 as CSD contribution is less than 50% of the AD total, therefore the A2 Confidence Grade predominates.

Line 6b - Length of new, renewed or relined mains delivered under the Water Main Rehabilitation Programme (km)

Line	Description	Units	DP	AD	AD CG	Total	Overall CG
6b	New renewed or relined mains under WMRP	km	2	123.33	A2	123.33	A2

AD has continued its method of reporting on new mains in line 6 to comply with the Regulator's Annual Information Return reporting requirements and definitions manual.

The figure of 123.33km is derived from the Asset Delivery totals Watermains Rehab of 90.42km of rehabilitated Watermains Rehab plus 32.91km of new mains Relining was not utilised as a watermains rehabilitation technique during this period. This total for this year is 20% higher than last year's output but below the *average* annual PC21 target of 139.7km

Overall Line Confidence Grade is A2 as the Asset Delivery Team are the only contributors to this line.

Line 7 - Mains abandoned and other changes (km)

Line	Description	Units	DP	AD	AD CG	C&OD	C&OD CG	Total	Overall CG
7	Mains abandoned and Other Changes	Km	2	112.82	A2	0.09	B3	112.91	A2

Asset Delivery

The total of Abandoned Mains in this period = (112.44km from Rehab Project, 0.345km from Crescent Link Scheme and 0.03km Miscellaneous mains from the output sheet =112.82km by the Asset Delivery Team

Also add in 0.09km from the C & OD Team = 112.91km

Asset Delivery Confidence Grade is A2.

C&OD Networks Water

Data for 1st April 22 – 31st March 23 was collated by Field Managers, confirmed and input to a spreadsheet managed by the WPL Team, who collate the data for the annual reporting period.

Asset Delivery Function is again the primary contributor to this information, but Networks Water will continue to have a minimal input where appropriate. The figure is minimal for this year compared to a 5-year average of 0.9km

Confidence Grade: B3

Continuing discussion and guidance will be on-going for the relevant Field Managers when providing this information.

Future Reporting

For AIR 24 Networks Water will continue to develop the established process for monthly reporting using MWM as a source for base information.

C&OD Networks Water Confidence Grade is B3.

The Overall Line Confidence Grade is A2 as approximately 99% plus , of this return is from Asset Delivery.

Line 8a: Lead Communication pipes replaced – as a consequence of water quality sample failures (no.)

Line	Description	Units	C&OD	Total	Overall CG
8a	Lead Communications Pipes replaced as consequence of WQ Sample Failures	Nr	0	0	B2

Data for the reporting period 1st April 22 – 31st March 23 was collated using system reports by Requisition and Construction Managers based in Developer Services Function. The details, when checked and confirmed, were input onto a spreadsheet. This is managed by the Water Business Unit which collates the data for the annual reporting period.

Scientific Services section also hold records of addresses where water quality samples have failed in relation to lead content. The 5 year average for this is 21nr.

The continuing high level of water quality standards is resulting in the ability to reduce lead communication pipes remaining in the network. Sample locations are also random which means that areas where lead may still be prevalent can be underrepresented.

Future Reporting

For AIR 24, Networks Water will continue to use the refined definitions for Lead Communication Pipe replacements for monthly reporting using both MWM as a source for base information and Scientific Services records.

Overall Line Confidence Grade is B2.

Comment – This figure continues to be minimal compared to the figures submitted for Line 8b.

Line 8b - Lead Communication pipes replaced – as a consequence of customers replacing their lead supply pipe (no.)

Line	Description	Units	C&OD	Total	Overall CG
8b	Lead Communications Pipes replaced as consequence of Customers notifying of supply pipe change	Nr	395	395	B2

Data for the reporting period 1st April 22 – 31st March 23 was collated using system reports by Requisition and Construction Managers (R&C Managers) based in Developer Services (DS) Function. When checked and confirmed the details were transferred onto a spreadsheet managed by the WPL Team.

Confidence Grade: B2

This figure is comparable to the 5-year average figure of 441 nr per year but there is no set target for this line as it is customer driven.

Future Reporting

For AIR 24 Networks Water will continue to use the refined definitions for Lead Communication Pipe replacements for monthly reporting using MWM as a source for base information.

There is no set target for this line. These relatively small figures each year can easily fluctuate as the replacements counted here are opportunistic so there is no significance to this annual change.

Overall Confidence Grade is B2 as the return is exclusively from CSD.

Line 8c - Lead Communication Pipes replaced – Opportunistic (no.)

Line	Description	Units	AD	AD CG	C&OD	C&OD CG	Total	Overall CG
8c	Opportunistic Lead Communications Pipes replaced	Nr	0	A2	34	B3	34	B3

Asset Delivery

These are Lead Comms pipes which have been encountered while replacing watermain and which have been replaced by plastic pipes

C&OD Networks Water

Data for the reporting period 1st April 22 – 31st March 23 was collated by the WPL Team using MWM system reports run on a monthly basis by Field Manager area for selected Standard Jobs. When checked and confirmed the data was input onto a spreadsheet managed by the Water Business Unit. This figure is comparable to the average 5 year figure of 40 nr.

Confidence Grade: B3

This figure is up slightly in comparison to the previous year of 22nr but is comparable to the 5 year average figure of 40nr These numbers are however small and therefore this does not indicate a significant trend.

It remains problematic when analysing some Work Orders to ascertain if a full communication pipe replacement has taken place and if lead was a factor. This is generally dependent on the repair crew adding suitable closure comments or on comments provided by the initiator of the job. There are varying degrees of accuracy and detail across different Field Manager areas.

Future Reporting

For AIR 24 Networks Water will continue to use the established process for monthly reporting using MWM as a source for base information.

Overall Line Confidence Grade is B3 using the CSD figure of B3 due to the Zero return from the AD Team

Line 8d - Lead Communication pipes replaced – Proactive lead replacement programme (no.)

Line	Description	Units	AD	Total	Overall CG
8d	Lead Communications Pipes replaced under proactive programme	Nr	1,873	1,873	A2

Overall Confidence Grade is A2 due to the fact that all of this data was sourced from the Asset Delivery Team whose CG is A2 for this line. This output figure is an accurate representation of this activity as it is a proactive Project focused on replacing a number of lead communications pipes in defined areas.

The PC21 year 2 sub programme 23 results showed 1,873nr completed (plus 1,864nr from Year 1 gives a running total of = 3,737 lead pipes replaced as a result of the implementation of the proactive lead replacement programme.)

The average PC 21 target per year = 1,844 x 2 (years) = 3,688nr

The PC21 Running Total is 3,737

Line 9 - Total Lead Communication Pipes Replaced – Sum of 8a, 8b, 8c and 8d (no.)

Line	Description	Units	AD	AD CG	C&OD	C&OD CG	Total	Overall CG
9	TOTAL Lead Communications Pipes replaced	Nr	1,873	A2	429	B2	2,302	A2

Asset Delivery

This is the calculated sum of Lines 8a, 8b, 8c and 8d
Asset Delivery Water Confidence Grade is A2.

C&OD Networks Water

This is the calculated sum of Lines 8a, 8b, 8c and 8d

Calculation - The CSD Total is 395+34 = 429

This figure has decreased this year and is primarily linked to the figures provided for line 8b

Future Reporting

For AIR 24 Networks Water will continue to use the established process for monthly reporting using MWM as a source for base information.

C&OD Networks Water Confidence Grade is B2.

Overall Line Confidence Grade is A2, as approx. 80% of this return is from the Asset Delivery Team.

Line 10 - Communication pipes replaced – other (no.)

Number of communication pipes (all types of materials but excluding lead) replaced for other reasons (e.g. at the customer's request or due to Rehab of the watermain)

Line	Description	Units	AD	AD CG	C&OD	C&OD CG	Total	Overall CG
10	Communications Pipes replaced (other)	Nr	1,767	A2	1,129	B3	2,896	A2

Asset Delivery

This data comes from the summary data collected monthly in the NI Water CPMR System, for the period April 2022 to March 2023, (which are submitted/compiled monthly by the Asset Delivery Team

C&OD Networks Water

Data for the reporting period 1st April 22 – 31st March 23 was collated by the Water Business Unit using MWM system reports run on a monthly basis by Field Manager area for selected Standard Jobs. When checked and confirmed, the data was input onto a spreadsheet managed by the Water Business Unit.

Confidence Grade: B3

The total Network Team figure of 1,129 is comparable to the 5 year average of 1,387nr. It remains problematic when analysing some Work Orders whether or not a full communication pipe replacement has been carried out or only a localised burst service repair completed. This is generally dependent on the repair crew adding suitable closure comments or on comments provided by the initiator of the job. The level of accuracy and detail provided varies by Field Manager area, however some repair crews over the last number of months, have been changing the completed standard job from replace Comms. Pipe to the accurate standard job for the actual repair carried out. Going forward, this will help to somewhat improve the accuracy of the activity carried out. However this figure of 1129 is comparable to the 5 year average of 1386.

Future Reporting

For AIR 24 Networks Water will continue to use the established process for monthly reporting using MWM as a source for base information.

C&OD Networks Water Confidence Grade is B3.

Overall Confidence Line Grade is A2 as approximately 60% of this return comes from the Asset Delivery Team.

Line 11 - Mains bursts per 1,000km

The specified unit for Line 11 is Mains Bursts per 1,000km. NIW do not currently record Mains Bursts per 1000km but record the actual number of Mains Bursts Repairs carried out. Detailed data for the reporting period April 22 – March 23 was collated using MWM system reports which when checked and confirmed were transferred onto a summary spreadsheet. Several repairs attributable to third party damage have also been extracted from the final total. The total no. of mains bursts repairs for Networks Water was then converted to bursts per 1,000km.

Calculation of Mains Bursts per 1,000km

Total Burst Mains divided by Total length of mains multiplied by 1,000
 $2513 - 17$ (re-chargeables) / 27140.38 = 0.0924 x 1,000 = 92.0

Total Bursts per 1,000km = 92.0

2019 information return was 2,562 (inc. 95 no. re-chargeables)

2020 information return is 2,237 (inc. 26 no. re-chargeables)

2021 information return is 2,400 (inc. 29 no. re-chargeables)

2022 information return is 2,498 (inc. 10 no. re-chargeables)

2023 information return is 2,513 (inc. 17 no. re-chargeables)

Proportion of bursts within line 11 detected by proactive methods

The total number of Mains Repairs carried out by the Water Production Line (Networks Water) was 2513 (including 17 no. due to third party damage).

The number of mains repairs carried out due to non-proactive leakage detection methods was 1371.

The number of mains repairs carried out due to proactive leakage detection methods was 1142.

Confidence Grade B3

Networks Water, within the Water Production Line, underwent some re-organisational change in early June 2019 but this has not impacted data capture methodologies or technical processes when collating the required information.

Burst Numbers Summary Table	AIR19	AIR20	AIR21	AIR22	AIR23	Percentage Changes	
						AIR21-22	AIR22-23
CSD Networks Water (non- proactive detection)	1451	1186	1268	1353	1371	6.7%	1.3%
CSD Networks Water (pro-active detection)	1111	1051	1132	1145	1142	1.1%	-0.3%
Third Party Damage	95	26	29	10	17	-65.5%	70.0%
Total	2467	2211	2371	2488	2496	4.9%	0.3%

Burst Rate per 1000km	91.5	81.9	87.8	91.8	92	4.6%	0.2%
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The number of bursts for Networks Water has been captured for the complete year using base information monthly from MWM reporting systems. In conjunction with burst flag reports, taken from the CAR2Map database, individual Work Orders have been analysed and duplicates and non-mains repairs extracted. This year's burst rate figure stays very similar to the AIR 22 figure and is very much in line with the average figure for the last five-year reporting period (AIR19 to AIR23) i.e., 88.9. The following comments continue to be positive factors in relation to burst main repair numbers:

- Mains rehabilitation schemes continue to have a positive impact in reducing the no. of defects with older iron mains being replaced.
- Pressure Management Schemes in targeted areas including new installations, replacements, and the relocation of pressure reducing / sustaining valves.
- Continuing detail has been paid to the classification of mains repairs as opposed to communication pipe repairs or replacements.
-

The number of mains repairs due to both non-proactive and proactive leakage detective methods stay largely the same as the AIR 22 figure and like the AIR 22 reporting period, this is primarily down to prolonged cold spells again this year, throughout December and January in particular.

The number of mains repairs down to proactive leakage detection methods is slightly up in comparison with the last five years' average figure from AIR 19 onwards (1132 no.), however the change is negligible and there has been continued emphasis on proactive leakage detection by 'In House' Crews.

There has been a slight increase in the number of repairs attributable to Third Party Damage (17 no.), compared the 2022 figure and the figures are comparable to the figures for 2020 & 2021. The reasons that the figure for these remain quite low are unclear and are difficult for NI Water to manage as the figure is dependent on both contractors admitting liability and front-line operatives initiating the re-chargeable process. However, by the start of this reporting period, there had been significant restructuring to the areas covered by those investigating potential third-party damage work orders. This process was then hampered by backlogs due to staff availability for several months, in the South-East Area, but it is hoped there will be further improvement to the results in the AIR 24 reporting period, as the staffing issue has now been resolved.

Unplanned, Unwarned Interruptions.

AIR	DG3 Properties Affected	2020/21	2021/22 (inc. Dunore)	2021/22 (exc. Dunore)	2022/23
Table 2: Line 5	More than 3 hours	24,443	35,321	21,859	15,495

The **Table 11: Line 11** outturn number of bursts per 1,000 km of mains and **Table 2: Line 5** outturn number of properties affected by unplanned interruptions >3hrs are closely related as the majority of unplanned interruptions are caused by bursts. As such, the expectancy is for the trends for these two measures to be similar.

The following table lists the outturn numbers of bursts for the last three years, including and excluding the impact of extreme or atypical events.

Bursts	2020/21	2021/22	2022/23 inc. Freeze/ Thaw	2022/23 exc. Freeze/ Thaw
Bursts (nr)	2,400	2,498	2,513	2,312*
Difference	+163	+98	+15	-186
% Difference	+7.3%	+4.1%	+0.6%	-7.4%
Trend	Increase	Increase	No Change	Decrease

*Excludes an estimated 201 bursts associated with Freeze/Thaw in December 2022

The number of bursts in December 2022 was 394, more than twice the monthly average of 193 for the remaining eleven months and this was due to the same winter freeze/thaw event as previously described. Although it is not possible to determine which bursts would still have occurred had it not been for the freeze/thaw, the impact of the freezing weather is clear and an adjustment is therefore necessary before the figures can be compared.

Properties Affected by Unplanned Interruption Events >3 Hours

The figures below are for properties affected by unplanned interruptions during the period 16th to 23rd December 2022 and are inclusive of the winter freeze/thaw event. The figures confirm that the impact on the >3hrs time band was minimal.

>0hrs	>3hrs	>6hrs	>12hrs	>24hrs
9,372	259	9	0	0

The following table lists the outturn numbers of properties affected by unplanned interruption events >3 hours for the last three years, including and excluding the impact of extreme or atypical events.

Unplanned >3hrs	2020/21 No Detailed Review	2020/21 Detailed Review	2021/22 inc. Dunore TM burst	2021/22 exc. Dunore TM burst	2022/23
Properties (nr)	24,443	24,443	35,321	21,859**	15,495
Difference	-24,738	+344*	+10,878	-2,584	-6,364
% Difference	-50.3%	+1.4%	+44.5%	-10.6%	-29.1%
Trend	Decrease	Increase	Increase	Decrease	Decrease

*Estimated difference if a detailed review of interruption events had been undertaken in 19/20

**Excludes 13,462 properties affected by Dunore pumping main burst in July 2021

When the affected property outturns for 2021/22 and 2022/23 are compared, including an adjustment for the Dunore TM burst of July 2021, the figures confirm that 6,364 fewer properties were affected in the last year, a reduction of 29.1%. As unplanned interruption event and burst rate trends would suggest only a decrease of between 5.0% and 7.4% respectively, this uncharacteristically high reduction requires explanation.

The reduction is indicative of a decrease in the average number of properties affected by unplanned interruptions caused by bursts and this has been achieved through the implementation of actions aimed at mitigating the impact of bursts. NI Water's ITS Strategy is focussed on improving DG3 performance and reducing the average number of lost minutes of supply per property. As part of the work being undertaken, the Company has engaged with colleagues from across the Water Sector to develop a better understanding of the technologies and techniques employed to deal with bursts and has invested in these areas.

Examples include the use of a Mobile Booster Trailer that can be taken to the location of bursts and used to maintain water pressures while repairs are being carried out, thus greatly reducing the time that customers are out of supply. This has proved so useful, that the company are in the process of obtaining a second Mobile Booster Trailer. The Company also continues to invest in the proactive rehabilitation of its water main infrastructure, reducing the likelihood of bursts occurring on older parts of the network and in areas where issues have arisen in the past. Key elements of the ITS Strategy are listed below.

- **Capital Investment in Watermains**
- **Post-Interruption Reviews**
- **Working Differently**
- **SMART Network**
- **CALM Network**

Future Reporting

For AIR 24 Networks Water will continue to use the established process for monthly reporting using MWM systems as a source for base information.

Lines 13 to 17- Distribution studies

Lines 13 to 17 reflect the reporting requirements for the Zonal Study Methodology that has traditionally been employed by NI Water to highlight and prioritise investment in the Water Network.

This methodology involved, identifying Zones which were then: intensively examined, hydraulically modelled, site checked and discussed in detail with NI Water Managers.

The output of this exercise was a prioritised list of Network Rehabilitation and Rationalisation schemes.

All Zonal Studies have been addressed and completed over the 13 years or so prior to 2014, and therefore all of NI Water Zones had been addressed by the Rehabilitation/Zonal Study Process .

The Confidence Grade therefore of this line is A1.

Line 13 – Cumulative number of distribution zone studies completed.

The Zonal Studies table does not reflect the Networks Water rehabilitation approach. The implications for Lines 13 to 17 are that the specific question in relation to Zonal Study completion should probably be changed in the future to reflect progress in the new WIIM methodology. The total submitted however is 71 Zonal Studies completed (this has been the return since 2015 as it does not change).

Watermains Infrastructure Investment Model (WIIM) Workpackages Overview

The Zonal Study methodology has now been superseded by the WIIM Methodology. This methodology relies on current Corporate asset data to build up a picture of prioritised needs which is then checked hydraulically against a model and the output reviewed by NI Water Managers and Field Staff.

The data return figures for this issue are therefore irrelevant and should be removed

The WIIM methodology involves taking all appropriate NI Water asset datasets, which reflect the performance of the network (also including Customer data) and then applying a scoring matrix to reflect these datasets for all distribution pipelines in NI Water. These scores are then applied to each pipeline. The highest scoring model areas are then examined for prioritised and appropriate intervention depending on the drivers for each pipeline.

NIAUR were informed of the proposed approach regarding incorporation of DG3 into WIIM in a detailed response to this and a number of related queries in September 2014 (see PC15 DD Response Annex K 5 11 9 V1.4 Watermain Rehab.doc available on request).

A formal Presentation was delivered to CCNI in September 2014 in order to inform them of progress around WIIM and explain plans regarding incorporation of DG3 into analysis.

WIIM Super Workpackage Overview, passed to the Asset Delivery Team in 2021-2022 period

WP Name	Length (km)	Cost (£M)	Scheme Count
Leakage WP1	3.2	1.5	21
WIIM Super WP Western	78	8.9	58
WIIM Super WP Central	73	8.7	74
Leakage WP2	16	1.8	10
High Priority Schemes 2022	11	1.1	19
Leakage WP3	18	2	19
TOTAL	199.2km	£24.0 M	201 Nr

Watermains Rehabilitation Workpackages

Total handover Summary for Year 1 of PC21

Total length handed over to the Asset Delivery Team in PC21 = **199.2km**

Estimated Cost of Schemes handed over to the Asset Delivery Team in PC21 = **£24M**

Total scheme count handed over to the Asset Delivery Team in PC21 = **201nr**

WIIM Workpackage Overview, passed to the Asset Delivery Team in 2022-2023 period

WP Name	Length (km)	Cost (£M)	Scheme Count
Regenerated WIIM Work Package 2022 C	11	1.2	21
Regenerated WIIM Work Package 2022 B	9	1	27
Regenerated WIIM Work Package 2022 A	9	1	15
Regenerated WIIM Work Package 2022 D	10	1.2	19
Derrylin Ballygawley Regen 2 WP	27	2.9	24
Drumaroad Ards Regen 2 WP	27	2.9	71
Drumaroad Strangford Regen 2 WP	27	3.2	44
Enniskillen Derrygonnelly Regen 2 WP	28	3.2	49
Toome Randalstown Regen 2 WP	29	3.2	51
DG2 WP1	9	2.4	13
DG2 WP2	3	0.6	5
DG2 WP3	8	1.3	11
TOTAL	197 km	£24.1 M	350 Nr

Watermains Rehabilitation Workpackages**Total handover Summary for Year 2 of PC21**

Total length handed over to the Asset Delivery Team in PC21 = **197km**

Estimated Cost of Schemes handed over to the Asset Delivery Team in PC21 = **£24.1M**

Total scheme count handed over to the Asset Delivery Team in PC21 = **350 nr**

Hydraulic Model Rebuilds

The hydraulic models are rebuilt and kept up to date so they can be used as a tool to help identify network performance problems and develop best value solutions which improve the customers' levels of service. The hydraulic models are currently being used to develop schemes for the Water Mains Rehabilitation programme, determine the impact of new developments, resolve DG2 low pressure problems, verify DG3 figures for Interruption to Supply (ITS) events and support major incidents. The hydraulic models are currently being used to plan network improvements, inform robust investment decisions and support operational decision making. The model library is continually enhanced to improve coverage across the entire network so that the models can be used as a valuable support tool.

Hydraulic Model Rebuilds Completed in 2021-2022

Hydraulic Models Rebuilds Completed in 2021-2022	Month Completed	Year Completed	Numbers of Properties
MG11 Belfast Oldpark	November	2021	22,439
MG11 Dunore Ballygomartin South	November	2021	18,809
MG11 Dunore Ballygomartin North	November	2021	19,344
MG11 Dunore Belfast North	November	2021	20,474
MG10 Belfast Breda South	November	2021	25,344
MG10 Belfast Purdysburn	November	2021	17,034
MG10 Belfast Breda North	November	2021	18,884
MG10 Belfast Ballyhanwood	November	2021	25,538
MG09 Drumaroad Lisburn – Castlereagh	February	2022	11,947
MG09 Lisburn South Rural	February	2022	6,053
Total number of models completed during 2021-2022 = 10no.			

Hydraulic Model Rebuilds Completed in 2022-2023

Hydraulic Models Rebuilds Completed in 2022-2023	Month Completed	Year Completed	Numbers of Properties
MG12 Forked Bridge Dunmurry	July	2022	27,988
MG12 Forked Bridge Stoneyford	July	2022	11,913
MG14 Dungonnell	August	2022	16,760
MG14 Foffany North	September	2022	20,508
MG14 Ballymena	November	2022	17,341

Total number of models completed during 2022-2023 = 5no.

Hydraulic Model Rebuilds in Progress 2023-2024

Hydraulic Models Rebuilds in Progress 2023-2024	Year To Be Completed	Numbers of Properties
MG13 Caugh Hill Dungiven	2023	7,107
MG13 Ballinrees Coleraine	2023	42,212
MG15 Castor Bay Lurgan	2023	13,121
MG15 Castor Bay North	2023	51,322
MG16 Drumaroad Portaferry & Ards West	2023	38,784
MG16 Altnahinch Bushmills	2023	14,302
MG16 Fofanny Mourne	2023	26,464
MG17 Dunore Point Antrim	2023	23,197
MG17 Carran Hill	2023	6,101
MG17 Ballinrees Limavady	2023	9,260
MG18 Moyola	2023	25,217
MG18 Lough Fea	2023	16,760
MG18 Lough Braden Drumquin	2023	10,400
MG19 Drumaroad Ballynahinch	2023	13,805
MG19 Drumaroad Downpatrick	2024	18,204
MG19 Drumaroad Lisburn Urban	2024	14,500
MG20 Carrmoney Eglinton	2023	20,639
MG20 Corrody Derry	2023	29,153
MG21 Seagahan	2024	16,084
MG21 Clay Lake	2024	4,177

Total number of models in Progress during 2023-2024 = 20no.
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Summary of Current Model Status

Model Name	Model Available	Date Model Calibrated (Maintained)
Rathlin Island	None	N/A
Ballinrees Coleraine	AQUIS	2002/05
Caugh Hill Dungiven	AQUIS	2006
Ballinrees Limavady	Infoworks WS (converted)	2006
Drumaroad Downpatrick	Infoworks WS (converted)	2008
Castor Bay Lurgan	Infoworks WS (converted)	2014
Castor Bay North	Infoworks WS (converted)	2014
Altnahinch Bushmills	Infoworks WS (converted)	2015
Drumaroad Lisburn - Urban	Infoworks WS (converted)	2015
Dunore Point Antrim	Infoworks WS (converted)	2015
Lough Bradan Drumquin	Infoworks WS (converted)	2015
Lough Fea	Infoworks WS (converted)	2015
Moyola Magherafelt	Infoworks WS (converted)	2015
Moyola Unagh Mormeal	Infoworks WS (converted)	2015
Carran Hill	Infoworks WS (converted)	2016
Clay Lake Keady	Infoworks WS (converted)	2016
Carrickfergus	Infoworks WS (converted)	2017
Castor Bay Dungannon	Infoworks WS (converted)	2017
Drumaroad Bangor	Infoworks WS (converted)	2017
Seagahan	Infoworks WS (converted)	2017
Ballywonard	Infoworks WS (converted)	2018
Carmoney Eglinton	Infoworks WS (converted)	2018
Corrody Derry	Infoworks WS (converted)	2018
Drumaroad Ballynahinch	Infoworks WS (converted)	2018
Foffany South	Infoworks WS (converted)	2018
Drumaroad Portaferry_Ards West	Infoworks WS (converted)	2016/2017/2018
Camlough Newry West	Infoworks WS	2019
Derg Strabane	Infoworks WS	2019
Dunore East	Infoworks WS	2019
Killyhevlin / Enniskillen	Infoworks WS	2019
Killylane	Infoworks WS	2019
Lough Macrory Killyclogher Omagh	Infoworks WS	2019
Drumaroad Lisburn	Infoworks WS	2020
Greater Belfast	Infoworks WS	2020
Ballymena	Infoworks WS	2021
Dungonnell	Infoworks WS	2021
Foffany North	Infoworks WS	2021
Forked Bridge Stoneyford	Infoworks WS	2021

Line 12 - Total length of mains on 31st March

This figure has been extracted from the Corporate Asset Register. There has been no change to the structure of the data reported on this year from the previous years that would directly affect the total provided. The confidence grade of the data will remain the same as

the previous year. There has been no deterioration in data quality since the previous AIR submission. Any new data will have adhered to the NIW Code of Practice for the submission of asset data ensuring that data quality levels have been maintained throughout the year.

This figure has not been calculated from Lines 1, 2, 6 and 7, it has been extracted using the process outlined in the methodology using data extracted from the Corporate Asset Register.

Lines 18 - 21 - Drinking Water Compliance

COVID-19

IMPORTANT Due to Covid 19 restrictions, customer tap samples were collected at upstream Service Reservoirs from 1st January 2022, with some customer tap only parameters excluded.

NI Water recommenced sampling at public buildings with effect from the week commencing 28th February 2022, and at private customer taps with effect from 14th March 2022.

Please note, that due to customer tap samples being collected to a large extent at upstream service reservoirs, we experienced a lower level of exceedances from 2020 to 2022 compared to years prior to 2020.

In particular, this affected Iron exceedances, as the sample points being used were being routinely flushed as part of the regulatory weekly sampling at service reservoirs.

Even after we resumed sampling at customer tap, on very many occasions the samplers were unable to gain access, so had to again take the sample at an upstream service reservoir, so again those tests had to be rescheduled. This led to issues with first draw tests needing to be rescheduled, as these tests are unrepresentative if not collected at the customer tap

Year	Site Code	Sample Point Name	Parameter	Date	Target
2022	ZN0704	Lough Bradan Drumquin Zone Audit Random Sample Point	Lead	14/02/2022	8
2022	ZN0704	Lough Bradan Drumquin Zone Audit Random Sample Point	Lead	28/03/2022	8
2022	ZN0704	Lough Bradan Drumquin Zone Audit Random Sample Point	Lead	16/05/2022	8
2022	ZN0704	Lough Bradan Drumquin Zone Audit Random Sample Point	Lead	27/06/2022	8
2022	ZN0704	Lough Bradan Drumquin Zone Audit Random Sample Point	Lead	15/08/2022	8
2022	ZN0704	Lough Bradan Drumquin Zone Audit Random Sample Point	Lead	26/09/2022	8
2022	ZN0704	Lough Bradan Drumquin Zone Audit Random Sample Point	Lead	14/11/2022	8
2022	ZN0704	Lough Bradan Drumquin Zone Audit Random Sample Point	Lead	12/12/2022	8

For example, the first draw test highlighted above scheduled for 16th May had to be rescheduled to 20th June as the sampler could not gain access to the randomly selected address.

The full sample comment is "No access Nos. 34, 58, 71. Upstream SR - first draw metals rescheduled to 20th June".

Deploy Full Sample			
Id Numeric:	4598251	Status:	A
Sample ID:	ZNO704AE-22-4598251	Priority:	2
Job name:			
Login Date:	19-APR-2022 03:01		
Site Code:	ZNO704		
Sampling Point:	ZNO704AE		
Date sample taken:	16-MAY-2022 09:30		
Collected by:	S_GURNEYE		
Received by:	DUFFYA		
Date received:	16-MAY-2022 13:13		
Product Name:	CLEAN_NEW		
Product version:	3		
Original sample:	0		
Location type:	ZONE		
Sample comments:	1. Upstream SR - first drain metals rescheduled to 20th June		
Analysis Comments:			
Template id:	PRE_477		
Collected from:	Dromore SR		
Post code:	BT78 3DL		
Public building:	No		

As such, the compliance assessments during the COVID-19 pandemic should not be compared with as rigorous a scrutiny against pre and post pandemic compliance assessments with regard to trend analysis. The affected years have been highlighted below as greyed out.

Results from PPP assets are included in the overall compliance with drinking water regulations and at customer tap, as certain parameters are analysed at these assets as "Supply Point Parameters", where they may be analysed either at customer tap or at an upstream authorised supply point. As such, they cannot be separated from the pure NI Water assets for compliance assessment. In addition to this, the compliance assessment is for Northern Ireland as a whole, and not only the areas supplied by NI Water only.

Line 18 - % Overall compliance with drinking water regulations

NI Water is assessed for its overall performance by % Overall Compliance at customer tap, WTWs, SRs, and Authorised Supply Points. Under this measurement method, there has been a plateauing in compliance over the last number of years, against a Utility Regulator specified target of 99.83%. Please note that water supplied from PPP assets is included in the compliance assessment. **This figure has been affected as discussed above, by not sampling all zone samples at customer taps during the COVID-19 period.**

Reporting Year	2014	2015	2016	2017	2018	2019	2020	2021	2022
% Overall Compliance	99.86	99.83	99.86	99.88	99.90	99.90	99.94	99.89	99.91

Line 19 - % Compliance at consumers tap (including supply points)

NI Water is assessed for its overall performance by % Compliance at customer tap including authorised supply points. Please note that water supplied from PPP assets is included in the compliance assessment. **This figure has been affected as discussed above, by not sampling all zone samples at customer taps during the COVID-19 period.**

Reporting Year	2014	2015	2016	2017	2018	2019	2020	2021	2022
% Compliance at consumer tap (including supply points)	99.78	99.74	99.77	99.81	99.83	99.84	99.91	99.82	99.88

As the root data used for the derivation of these lines is accurate, but there is an inherent uncertainty in any non-bacteriological analytical measurement, the confidence grade should be reported as A2.

Line 20 - % Iron compliance at consumers tap

This figure has been affected as discussed above, by not sampling all zone samples at customer taps during the COVID-19 period.

During 2022, although we officially returned to sampling at customer taps in mid-March, many samples continued to be sampled at an upstream service reservoir due to lack of access to customer properties. This led to a slightly higher Iron compliance than would otherwise have been expected, as the sample points being used were being routinely flushed as part of the regulatory weekly sampling at service reservoirs.

Reporting Year	2014	2015	2016	2017	2018	2019	2020	2021	2022
% Iron compliance at consumer tap	98.95	98.40	98.66	98.85	98.94	98.89	99.56	99.35	99.15

As the root data used for the derivation of these lines is accurate, but there is an inherent uncertainty in any non-bacteriological analytical measurement, the confidence grade should be reported as A2.

Line 21 - % Service reservoirs with coliforms in >5% samples

NI Water has continued to report 0 for this metric, having had 0 service reservoirs with >5% exceedances over the last number of years. There is an ongoing service reservoir cleaning programme to maintain this.

As the root data used for the derivation of these lines is accurate and the bacteriological analysis shows no presence of coliforms in >5% of samples, the confidence grade should be reported as A1.

For 2022, all PC21 targets were met.

Lines 22-24 – Nominated Water Service Outputs

Refer to Table 40a for detailed commentary on these lines.

Line 25 - Number of school visits

There were 210 schools visited (in-person) during this reporting period. This figure exceeds the annual PC21 target of 176 for School Visits, with an overall total target of 1056 for the duration of the six-year term.

Line 26 - Number of other education events

There were 63 other education events attended (in-person) during this reporting period. The PC21 target of Other Education Events is 57 per annum, with an overall target of 342 for the duration of this six-year term.

Line 27 – Number of catchments where management plan recommendations have been delivered

All 23 live drinking water catchments had a Catchment Management Plan (CMP) delivered in PC15.

These 23 CMPs were then prioritised down to a figure of 20 prior to PC21, after a prioritisation exercise was carried out by RPS. Prioritisation was carried out to ensure best use of resource in the PC21 period, in catchments where pressures and threats exist. This prioritisation report and associated catchment specific measures ('recommendations') then informed the PC21 SCaMP Business Case (appendix 4B specifically) and SCaMP work programme.

Targets for the number of catchments where management plan recommendations (measures) have been delivered period are below:

PC21					
2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
0	3	4	5	5	3

In the 2022-23 period, 3 catchments had all management plan recommendations completed, meeting the target of 3. These catchments are Drumaroad, Dungonnell and Fofanny.

There are other catchment management recommendations/measures underway/ongoing in other catchments but are not yet fully completed and are not counted towards 2022-23 targets.

Line 28 - Number of treatability studies completed

The reported number of treatability studies completed in PC21 is 1. This is based on studies completed to date in PC21 with outcomes available to inform the PC27 submission as per the reporters' requirements.

This is two less than indicated in the Treatability Studies Completed Programme submitted in AIR22. It should be noted that Treatability pilots have been completed on-site at an additional 3 WTWs however the treatability study reports for these are still awaiting completion. These should be available within the next 4 to 8 weeks.

The treatability study completed was at Lough Fea WTWs which was brought forward into 2023/23 to support groundwater testing that was carried out in the vicinity of the WTWs. An additional treatability study was also completed on-site at Drumaroad WTW however the outputs of this are to inform PC21. This site currently has an enforcement Notice for

Aluminium (with completion date of 30 April 2025), and the outputs of the study will be delivered in PC21 to ensure compliance with this Notice.

There also has been some proposed amendments to the overall treatability programme with a summary in Table 1 below and further detail in Table 2. NI Water has submitted the current pilot program to DWI through the DWI/NIW compliance programme meeting, and they are supportive of the approach being adopted. We update UR on annual basis on the treatability program through the Table 11 Line 28 submission.

Table 1 – Treatability Studies Summary

Output		2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
Number of treatability studies completed	PC21 Proposed Programme	0	0	0	12	0	0
	AIR22 Programme	0	3	4	3	2	0
	Current Programme	0	1	7	3	1	0

Table 2 – Current Pilot Program

WTWs Name	Year	Primary Reason	Outputs of Pilot to be delivered in :		Status	Update from AIR22
			PC21	PC27		
Carmoney	2022/23	[REDACTED]		Y	Delayed	Treatability Pilot Study complete on site but awaiting completion of report. Should be available in 8 weeks.
Drumacroad	2022/23	[REDACTED]	Y		Delayed	Treatability Pilot Study complete on site but awaiting completion of report. Should be available in 8 weeks.
Dungannonell	2022/23	[REDACTED]		Y	Delayed	Treatability Pilot Study complete on site but awaiting completion of report. Should be available in 8 weeks.
Altnahinch	2022/23	[REDACTED]		Y	Delayed	Treatability Pilot Study complete on site but awaiting completion of report. Should be available in 8 weeks.
Castor Bay	2023/24	[REDACTED]	Y		Planned	No Change

WTWs Name	Year	Primary Reason	Outputs of Pilot to be delivered in :		Status	Update from AIR22
			PC21	PC27		
Fofanny	2024/25			Y	Planned	The treatability study for this site was originally planned for 2023 but now planned for 2024 with Moyola deemed a higher priority
Dunore Point	2024/25		Y		Planned	The treatability study for this site was originally planned for 2023 but now planned for 2024. This is due to planned works on the site in 2023 which would interfere with the treatability study.
Killyhevlin	2023/24			Y	Planned	No Change
Lough Bradan	2024/25			Y	Planned	The treatability study for this site was originally planned for 2023 but now planned for 2024. Following further review a pilot MIEX plant is required for the study which will be at Killyhevlin in 2023
Camlough	N/A			Y	N/A	Following outputs from the current Draft Water Resource & Supply Resilience Plan there is no requirement to bring Camlough back into operation and therefore study is no longer required
Lough Fea	2022/23			Y	Complete	The treatability study for this site was originally planned for 2024 but was brought forward to support groundwater testing that was carried out in the vicinity of the WTWs as part Water Resource Optioneering

WTWs Name	Year	Primary Reason	Outputs of Pilot to be delivered in :		Status	Update from AIR22
			PC21	PC27		
Clay Lake	2023/24	[REDACTED]		Y	Planned	The treatability study for this site was originally planned for 2024 but is being brought forward into 2023 as part of Drought/High Demand Mitigation following the installation of new filters at the site.
Killyane	2024/25	[REDACTED]		Y	Planned	No Change
Moyola	2023/24	[REDACTED]		Y	Planned	The treatability study for this site was originally planned for 2025 but was brought forward in substitute of Foffany treatability study as deemed a higher priority.
Carran Hill	2025/26	[REDACTED]		Y	Planned	No Change
Caugh Hill	2023/24	[REDACTED]	Y		Planned	This is a new addition to the list from previous and replaces the planned work at Dunore.

NORTHERN IRELAND WATER LIMITED - ANNUAL INFORMATION RETURN

ANNUAL INFORMATION RETURN - TABLE 12 NON FINANCIAL MEASURES
WATER EXPLANATORY FACTORS - (NIW Only)

DESCRIPTION	UNITS	DP	1	2	3	4	CG
			NR OF SOURCES	PROP'N DIST INPUT	BULK PROP'N OF D.I.	REPORT YEAR	

A SOURCE TYPES AND PUMPING

	UNITS	DP	1		2		3		4	CG
			nr	0	Prop'n (0-1)	3	Prop'n (0-1)	3		
1 Impounding reservoirs			22		0.761		0.000			B2
2 River abstractions			9		0.237		0.000			B2
3 Boreholes			2		0.002		0.000			B2
4 Source types and pumping; total			33		1.000		0.000			B2
5 Average pumping head - total	m.hd	1						91.5		B4

B TREATMENT TYPE

	TOTAL PROP'N OF D.I.		TOTAL NR OF WORKS	
	UNITS	DP	UNITS	DP
6 Proportion of distribution input - simple disinfection	0.000	3	nr	0
7 Proportion of distribution input - W1	0.000		0	
8 Proportion of distribution input - W2	0.000		0	
9 Proportion of distribution input - W3	0.515		10	
10 Proportion of distribution input - W4	0.485		10	
11 Proportion of distribution input - total	1.000			
12 Total numbers of works			20	

BAND 1	BAND 2	BAND 3	BAND 4
<= 165mm	166 - 320mm	321 - 625mm	> 625mm

C POTABLE MAINS

13 Potable mains (nominal bore)	km	2	21,190.09	4,286.95	1,380.76	282.52
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NORTHERN IRELAND WATER LIMITED - ANNUAL INFORMATION RETURN

ANNUAL INFORMATION RETURN - TABLE 12 NON FINANCIAL MEASURES
WATER EXPLANATORY FACTORS (PPP Only)

DESCRIPTION	UNITS	DP	1	2	3	4	CG
			NR OF SOURCES	PROP'N DIST INPUT	BULK PROP'N OF D.I.	REPORT YEAR	
A SOURCE TYPES AND PUMPING							
1	Impounding reservoirs		2	0.045	0.000		B2
2	River abstractions		4	0.955	0.000		B2
3	Boreholes		0	0.000	0.000		A1
4	Source types and pumping; total		6	1.000	0.000		B2
5	Average pumping head - total	m.hd	1			154.1	B4

TOTAL PROP'N OF D.I.		TOTAL NR OF WORKS	
UNITS	DP	UNITS	DP
Prop'n (0-1)	3	nr	0
0.000		0	
0.000		0	
0.000		0	
0.000		0	
1.000		4	
1.000		4	

BAND 1	BAND 2	BAND 3	BAND 4
<= 165mm	166 - 320mm	321 - 625mm	> 625mm

C POTABLE MAINS							
13	Potable mains (nominal bore)	km	2	0.00	0.00	16.42	0.00

NORTHERN IRELAND WATER LIMITED - ANNUAL INFORMATION RETURN

ANNUAL INFORMATION RETURN - TABLE 12 NON FINANCIAL MEASURES
WATER EXPLANATORY FACTORS - (Total)

DESCRIPTION	UNITS	DP	1	2	3	4	CG																																																												
			NR OF SOURCES	PROP'N DIST INPUT	BULK PROP'N OF D.I.	REPORT YEAR																																																													
A SOURCE TYPES AND PUMPING																																																																			
1	Impounding reservoirs		24	0.433	0.000		B2																																																												
2	River abstractions		13	0.566	0.000		B2																																																												
3	Boreholes		2	0.001	0.000		B2																																																												
4	Source types and pumping; total		39	1.000	0.000		B2																																																												
5	Average pumping head - total	m.hd	1			120.3	B4																																																												
<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2">TOTAL PROP'N OF D.I.</th> <th colspan="2">TOTAL NR OF WORKS</th> </tr> <tr> <th>UNITS</th> <th>DP</th> <th>UNITS</th> <th>DP</th> </tr> </thead> <tbody> <tr> <td>nr</td> <td>0</td> <td>Prop'n (0-1)</td> <td>3</td> </tr> <tr> <td>24</td> <td></td> <td>0.433</td> <td></td> </tr> <tr> <td>13</td> <td></td> <td>0.566</td> <td></td> </tr> <tr> <td>2</td> <td></td> <td>0.001</td> <td></td> </tr> <tr> <td>39</td> <td></td> <td>1.000</td> <td></td> </tr> <tr> <td colspan="2"></td> <td>nr</td> <td>0</td> </tr> <tr> <td>0.000</td> <td></td> <td>0</td> <td></td> </tr> <tr> <td>0.000</td> <td></td> <td>0</td> <td></td> </tr> <tr> <td>0.000</td> <td></td> <td>0</td> <td></td> </tr> <tr> <td>0.279</td> <td></td> <td>10</td> <td></td> </tr> <tr> <td>0.721</td> <td></td> <td>14</td> <td></td> </tr> <tr> <td>1.000</td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="2"></td> <td>24</td> <td></td> </tr> </tbody> </table>								TOTAL PROP'N OF D.I.		TOTAL NR OF WORKS		UNITS	DP	UNITS	DP	nr	0	Prop'n (0-1)	3	24		0.433		13		0.566		2		0.001		39		1.000				nr	0	0.000		0		0.000		0		0.000		0		0.279		10		0.721		14		1.000						24	
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Table 12 – Water Explanatory Factors**Water sources & treatment types – NI Water only****Changes to Sources since AIR23**

NI Water (Only) had the following 33 sources in service for part or all of AIR23, including in total: - boreholes (2nr), impounding reservoirs (22 nr), and rivers & loughs (9 nr). This is an increase of 1 since AIR22 with the construction of Moneymore Tamnadoey, a new borehole and water treatment works. This came into operation in August 2022.

Changes to treatment types since AIR22

As highlighted above with the introduction of Moneymore Tamnadoey this has seen the treatment type total increase by 1. The treatment process includes Pre-filter Chlorination, Filtration, Chlorination and Lead reduction and is designated as W3 treatment category and this category has increased from 9 to 10 for AIR23.

For AIR23 the treatment categories are - simple disinfection (SD) (0 nr); simple disinfection plus simple physical treatment (W1) (0 nr); single stage complex physical or chemical treatment (W2) (0 nr); more than one stage of complex treatment (W3) (10 nr); more than one stage of complex treatment, capturing processes with very high operating costs (W4) (10 nr).

Changes to proportional distribution input since AIR22

The Distribution Input (DI) has increased very slightly from last year. In 2021/22 the total average DI was 607.40 MI/day, whereas in 22/23 this is 607.87MI/d based on the Pre Maximum Likelihood Estimation (MLE) figure.

The following table shows changes which have occurred with reference to source types and treatment types since AIR22.

Location	AIR23 Source Type	AIR23 DI (MI/d)	Treatment Type	WTW In Service during AIR 22	Sources In Service at 31 st Mar 2022	Sources In Service at 31 st Mar 2023
Moneymore Tamnadoey	Borehole	0.46	W3	No	No	Yes
Rathlin	Borehole	0.05	W3	Yes	Yes	Yes
Killylane	Imp. Reservoir	11.49	W3	Yes	Yes	Yes
Dungonnell	Imp. Reservoir	8.59	W3	Yes	Yes	Yes
Altnahinch	Imp. Reservoir	8.33	W3	Yes	Yes	Yes
Lough Fea	Imp. Reservoir (listed as a Lough for AIR15 – classified as IR in June 2015)	13.11	W3	Yes	Yes	Yes

Location	AIR23 Source Type	AIR23 DI (MI/d)	Treatment Type	WTW In Service during AIR 22	Sources In Service at 31 st Mar 2022	Sources In Service at 31 st Mar 2023
Drumaroad	2No Imp. Reservoirs (Ben Crom IR & Silent Valley IR)	102.96	W3	Yes	Yes - 2No. sources	Yes - 2No. sources
Caugh Hill	Imp. Reservoir - Altnaheglish IR & River (Glenedra)	19.24	W3	Yes	Yes – 2No. sources	Yes – 2No. sources
Glenhordial	Imp. Reservoir	3.93	W3	Yes	Yes	Yes
Lough Bradan	2 No - Lough Bradan Imp. Reservoir, and Lough Lee	8.32	W4	Yes	Yes - 2No sources	Yes - 2No sources
Dorisland	7No Imp. Reservoirs – (Dorisland IR, Lough Mourne IR, Copeland IR, Lower South Woodburn IR, Upper South Woodburn IR, Middle South Woodburn IR and North Woodburn IR)	21.05	W4	Yes	Yes - 7No. sources	Yes - 7No. sources
Lough Macrory	1No Imp. Reservoir & 1No Lough (Lough Fingrean IR & Lough Macrory-Lough)	11.26	W4	Yes	Yes - 2No. sources	Yes - 2No. sources
Clay Lake	Imp. Reservoir	4.58	W4	Yes	Yes	Yes
Fofanny	3No Imp. Reservoir (Lough Island Reavey, Fofanny, Spelga)	36.71	W4	Yes	Yes – 3No. sources	Yes – 3No. sources
Seagahan	Imp. Reservoir	10.57	W4	Yes	Yes	Yes
Killyhevlin	Lough	26.84	W4	Yes	Yes	Yes
Carran Hill	Lough	5.43	W4	Yes	Yes	Yes

Location	AIR23 Source Type	AIR23 DI (MI/d)	Treatment Type	WTW In Service during AIR 22	Sources In Service at 31 st Mar 2022	Sources In Service at 31 st Mar 2023
Belleek	Lough	1.56	W3	Yes	Yes	Yes
Carmony	River	18.74	W4	Yes	Yes	Yes
Derg	River	16.44	W4	Yes	Yes– 2No sources (River Strule introduced April 2016, and River Derg)	Yes– 2No sources
Total				20	33	33

With ref to the UR’s Guidance the following table identifies the proportion of water taken from Lough Neagh (which is classified as a ‘River Abstraction’ source) within Block A and B of Table 12:

Table 12 Block	Proportion of water extracted from Lough Neagh - NIW Only	Proportion of water extracted from Lough Neagh – PPP Only	Proportion of water extracted from Lough Neagh - Total
A	0%	0.903	0.409
B – with reference to Treatment Type W4	0%	0.936	0.738

**Line 5 - Average pumping head
Summary Table**

	Average Pumping Head (m/hd)	
	AIR 22	AIR23
NI Water Only	90.28	91.5
PPP Only	154.16	154.05
Total	120.03	120.28

Total

The NIW ‘Total’ AIR23 Average Pumping Head is 120.28m.hd with a confidence grade of B4, this is an increase of 0.25m.hd from AIR22 (120.03m.hd).

Summary

Where possible NI Water seeks to use Telemetry Data for the calculation of the APH and 81% of pump set returns are based fully or in part on telemetry data for AIR23. For pump

sets with no telemetry data currently available, calibrated network models (Current Average Daily Demand Models) constructed by a framework of Consultants performing Detailed Zonal Studies (DZS) in various study areas across Northern Ireland continues to be the data source. Pump sets based solely on DZS data makes up 19% of the return.

For AIR23, NIW had 379 pump sets in service, of these 269 are based on flow and/or lift data from telemetry. 57 of the 379 have no / incomplete data and no return has been made for these pump sets.

The daily flow total for individual pump sets is 1668.00MI/d. Of this 1656.59MI/d is based on telemetry data. Thus 99.3% of flow is based on data relative to the reporting year. Similarly, the total lift for individual pump sets is 17,977.99m, of which 7378.12m is based on telemetry data, equating to 41.0% of lift based on data relative to the reporting year.

The Average Pumping Head figure has increased by 0.25m.hd from AIR22. Distribution pump sets have contributed an increase of 0.46m.hd to the overall figure, Water Supply an increase of 0.89m.hd and PPP a decrease of 1.21m.hd. Although the overall increase is minimal, the Water Supply and PPP changes are mainly due to raw water source management.

Distribution Input (DI)

The Company DI by Supply Source (607.87MI/d) has been provided by the Company's Leakage Data Management Unit, as has the PPP Only DI (278.3MI/d) and the NIW Only DI (329.5MI/d), obtained by adding the relevant Water Supply sources.

PPP only and NIW only 'Average Pumping Head' calculations

The NIW only and PPP only 'Average Pumping Heads' are 91.5m.hd and 154.05m.hd respectively. The PPP only value is in relation to the Pumping Head within the works. PPP WTWs do not have specific Distribution Networks, and therefore the water is extracted, treated and then exits the works into the NIW Distribution Network. Within the Distribution Network, PPP water then mixes with NIW water, therefore making it impossible for NIW and PPP flows to be truly separated for use in PPP only and NIW only average pumping head calculations. Hence the value of 154.05m.hd calculated for PPP only is more in relation to the Pumping Head within the works.

A confidence grade of 'B4' has been allocated to these values of 91.5m.hd and 154.05m.hd for the 'Average Pumping Head' for NIW only and PPP only respectively.

Line 13 - Potable mains NIW

This figure has been extracted from the Corporate Asset Register. There has been no change to the structure of the data reported on this year from the previous years that would directly affect the total provided. The confidence grade of the data will remain the same as the previous year. There has been no deterioration in data quality since the of the previous AIR submission. Any new data will have adhered to the NIW Code of Practice for the submission of asset data ensuring that data quality levels have been maintained throughout the year.

PPP

Lines 1- 4 Column 1 only – Number of sources (PPP)

The PPP Water sources have remained consistent over the reporting period for AIR23 as they were with AIR22. In accordance with AIR17, NI Water has included the River Bann

intake as an additional source to Ballinrees WTW. The reasoning used is, that there exists the potential to source the WTW directly from the River Bann rather than purely directing this source from the Ballinrees Impounding Reservoir. NI Water has also included the Altikeeragh IR as a source for Ballinrees WTW as it supplied a proportion of the water for Ballinrees WTW during the period 2022-23 as it did in 2021-22.

Lines 6-10 Column 1 only – Types of Treatment by Proportion (PPP)

No changes to the PPP types of treatment over the reporting period.

Lines 6-10 Column 2 only – Total number of Units referred to Type (PPP)

No changes to the PPP types of treatment over the reporting period.

Line 13 – Potable Mains (PPP)

No changes to the length of Potable Mains operated by the PPP Contractor over the reporting period.

Table 13 – Sewerage Properties and Population (Non-financial measures)

Introduction

Table 13 focuses on the number of properties and population connected to the public sewerage supply system. It extends to 10 lines, set out in three blocks:

- Block A Properties (Lines 1 & 2). Reports properties connected during the year.
- Block B Billing (Lines 3-12). Includes a breakdown of all measured and unmeasured household and non-household properties billed by the company. The property numbers should be the average for the reporting year.
- Block C Population (Lines 13-17). This records the population within each of the measured and unmeasured household and non-household categories. The population numbers should be the average for the reporting year.

The information in this table is used in tariff and charging analysis and determination (sewerage unit cost).

Data Sources, Data Validation and Data Quality Projects

NI Water's data on property counts and classifications is reported monthly from RapidXtra within the Rapid Property Summary (RPS). The data is extracted from the Diamond Warehouse via Microsoft SQL Server to produce the RPS report.

Our AIR23 methodology has remained consistent with previous years – using the automated Property Model tool to populate Table 13 figures (this was first introduced in AIR12 – the RPS as the input).

The RPS provides us with a snapshot at the end of each month in terms of net movement; however it alone does not support in the explanation of gross movements within the data. The plan is to further enhance the Power BI property models and incorporate these models across the business during 2023/24.

Customer/Property information is updated through:

- BAU ('business as usual') customer contacts, such as new connection requests, customer move in/move outs, or
- through Data Quality initiatives/Projects, and/or
- Metering work streams e.g. UNHH (Selectives), Optants, and Proactive Meter Exchange etc.

Under the Water & Sewerage Services (2006) Order, NI Water were required to install meters on all new household connections from April 2007. This practice has stopped as directed by a change in legislation, which took effect in July 2016. The legislation was amended by Regulations, which in effect relieved NI Water of the obligation to install meters at newly connected domestic properties. As domestic customers are not charged on a measured basis, the property is reported as unmeasured. Some domestic properties were initially reported as measured in AIR10 but this was rectified as per the erratum to AIR10. Depending on the basis for charging when domestic billing is introduced, these customers can be activated as measured household if required.

Based on standard industry figures, the volumes returned to sewer are assumed to be 95%, unless the customer challenges this assumption; whereupon they can apply for a non-return to sewer allowance which will be investigated and determined by NI Water.

For clarity, where reference is made in Table 13 to 'billed' household and 'billed' non-household, this is taken as the provision of water services to customers whether they are billed directly (non-domestic customers) or payment is made through subsidy by DFI (domestic customers).

As with Table 7 (Water) – as per Utility Regulator guidelines, farms were reclassified as billed non-households for AIR09 – this has remained for AIR23. Previously, in AIR08, farms had been classified and reported as 'billed' households; on the principle of their status and allocation of 'domestic allowance'.

The difference between the AIR22 and the AIR23 property figures can be explained as follows:

1. New Connections during the 2022/23 reporting year. The figures are based on data supplied by our Customer Connections Team and represent completed connections during the reporting year. The projections for New Connections remain in line with the agreed PC21 forecasts, however, if we notice an upturn or downturn, we will review and amend (during the compilation of the Principal Statement).
2. Added as a result of a customer contact. i.e. septic tank empty request, no water complaint, blocked sewer, updating of standing data e.g. removal of services etc. Within this category there are 2 scenarios:
 - (a) The adding of properties NI Water allegedly did not know about
 - (b) The adding of duplicates as the customer's address could not be found on Rapid. Rapid may hold the site number but when the customer contacts NI Water, they quote the verified postal address, which is different, therefore creating a duplicate. The street name may also have changed from the time of New Connection to that of customer contact (street names can change in the early stages of site development).
3. Removal/reclassification of properties as a result of data quality initiatives/projects
 - a. Duplicate properties
 - b. Reclassification of properties that were recorded in error
4. Change in occupancy status – movement from void/vacant to occupied and vice-versa.

As Data Owner for Property Standing Data, The Head of C&OD Services is responsible for the property standing data held by NI Water; this is monitored and managed through the Corporate Property Register (CPR) Project. The C&OD Business Services MI & Data Team chair this group.

The role of the CPR project is to agree a single consistent source of property data and to ensure that there is appropriate governance, controls and reporting for changes made to core data on the system. As Property Data Owners, we need to ensure the processes around creation, maintenance and demolition of properties are governed and appropriate control points and associated reporting are in place. Control is key for us; as such we have identified the systems, processes and people using property information across the business, alongside confirming data accuracy and endeavouring to reduce the opportunities for

erroneous data entry and creation (such as the inability to recreate demolished properties or duplicate properties).

The issues under consideration were identified as of corporate relevance, therefore, to ensure appropriate direction and governance the CPR was formalised. Key objectives include:

1. To agree a single consistent source of property data.
2. To ensure the source property data represents accurate, up-to-date information appropriate for use by the business.
 - a. To understand and agree data primacy in respect of data updates from NI Water and external (Land & Property Services - LPS) sources.
 - b. To ensure the processes around creation (i.e. New Connections), maintenance and demolition of properties are governed and appropriate control points and associated reporting are in place. i.e. through data validation.
 - c. To co-ordinate property reconciliations between NI Water & external sources i.e. Data Sharing Agreements between NI Water & LPS, NI Water & Belfast City Council (BCC) etc and understand the reasons and validity of any differences.
 - d. To understand and ensure the adequacy of long term procedures for database maintenance, including the updating of data standards and associated CDE M&M Plans.
3. To ensure the reporting requirements for the business are met relating to data held on Rapid, particularly, but not exclusively, in respect of tariffs, leakage, Annual Information Returns (AIR) & Principal Statement (PS) returns.
4. Challenge the data in the areas of
 - a. Data categorisation & structure.
 - b. Data robustness – i.e. where is our data good and where is there opportunity for improvement? Identify projects that could aid improvement.
 - c. Data alignment – both internally and externally. Internally between systems such as Rapid, Ellipse, GIS, Diamond, Netbase, IMS etc. Externally through data reconciliations, such as LPS above.
5. To agree measures to improve the quality and integrity of the data, particularly the key CDEs as monitored by IMU.
6. To agree the content and frequency of reports required by NI Water.
7. To agree the quality checking criteria for the above data and reporting and develop a Quality Plan including the determination of responsibilities and audit trails.
8. To produce & circulate an 'operate and maintain' programme for property data to the business.

The focus for the CPR project remains the same, including analysis and action on:

- Creation of an agreed single consistent source of property information, running alongside the CBC3 timelines.
- Volume of properties coming onto the Rapid billing system on a monthly basis
 - new connections
 - customer contact
 - project work
- Volume of properties coming off the Rapid billing system (demolished)
 - sample check to ensure reason for demolition has been noted and on system audit trail recorded
- Volume of properties amended on the Rapid billing system

- In particular, address fields -> building number, street name, town and postcode
- sampling to identify if the data changes are data improvement or data regression
- if data regression, further analysis into the process is undertaken
- Review of access privileges
 - Rapid audit
 - Through monthly audit samples
 - Internal CRs require sign off from CPR team as BAU
 - Working with Echo to review access privileges on an ongoing basis
- Interruptions to supply notices – returned mail
 - This returned mail has been previously brought to the attention of LPS and include properties that LPS have classified as live properties despite being returned as 'no such address' etc.
 - The 2 way communication with LPS will help underpin our governance work and provide direction to the business on practices.

Summary

As Table 13 is based on averages, please find summary table below for 'End March 2022' and 'End March 2023'. The '1st Dec 2022' actuals are used in the Principal Statement and Tariff Setting process.

Property Numbers	March 2022	1 st Dec 2022	March 2023	Expected Movement
Unmeasured Sewerage Household	658326	663042	665093	Increase
Unmeasured Sewerage Non-Household	8221	8152	8112	Decrease
Measured Sewerage Non-Household	26474	26729	26774	Increase
Voids	43311	43128	42804	Currently no trend that aligns with water
Total	736332	741051	742783	Increase

Site Metered Properties

As part of the ongoing data checks, NI Water has been confirming the number of site metered properties (multiple properties being charged through a single meter, such as business parks and industrial estates).

To ensure that these meters are not double counted, as with Table 7, the non-domestic site meters are not included in Table 13 non-domestic property counts (although NI Water still retain this information for customer record and charging purposes).

There are 3089 domestic properties (an increase of 122 during 22/23) classified as site meters. There will be further investigation and analysis to be completed during 2022/23 to ensure these are classified correctly.

Overall, the number of non-domestic site meters has increased by 248 during 2022/23. (15179-14931). This is as a result of categorisation movements in year such as measured water to site meter and unmeasured water to site meter.

Unmeasured Not Charged Properties

From the RPS, there are deemed to be 642 (gross) 'unmeasured – not charged' properties which (based on sample taken) are mostly NI Water properties. The C&OD Services MI & Data Team are currently investigating any 'unmeasured – not charged' properties outside of NI Water ownership to ensure they are classified correctly.

Unmeasured Household Property Movement

The table below provides a reconciliation of the reporting year property movements and resulting property numbers. It sets out how the properties have changed over the reporting year, due mainly to new connections, alongside some movement in the occupancy status. Note: these reported figures include domestic properties that are metered but as NI Water does not bill households for water, they are reported as unmeasured.

Property Numbers	March 2022	Dec 2022	March 2023
Unmeasured Sewerage Gross Household	692080	696820	698841
Unmeasured Sewerage Occupied Household (L3 year-end sub calc)	658326	656024	658326
Unmeasured Sewerage Voids Household	33754	33778	33748

Household Voids	Voids	Difference (in-year)
March 2023	33748	(+) 6
March 2022	33754	(-) 73
March 2021	33827	

Measured Household Property Movement

Due to the deferral of domestic charging, NI Water does not bill households for unmeasured or measured water, therefore we don't report figures for measured household property movements (they are included in the unmeasured line as they are not billed)

Unmeasured Non-Household Property Movement

Property Numbers	March 2022	1 st Dec 2022	March 2023
Unmeasured Sewerage Gross Non-Household	14547	13566	13865
Unmeasured Sewerage Occupied Non-Household (L6 year-end sub calc)	8221	8152	8112
Unmeasured Sewerage Voids Non-Household	6326	6153	5753

Measured Non-Household Property Movement

Property Numbers	March 2022	1 st Dec 2022	March 2023
Measured Sewerage Gross Non-Household	29705	30665	30077
Measured Sewerage Occupied Non-Household (L7 year-end sub calc)	26474	26729	26774
Measured Sewerage Voids Non-Household	3231	3197	3303

Non-Household Voids

Non-Household Voids	Voids	Difference (in-year)
March 2023	9056	(-) 501
March 2022	9557	(+) 746
March 2021	8811	

Confidence Grades

We have kept the confidence grades consistent with those of AIR22. During the reviews mentioned in the company commentary above, we will retain evidence to support any change in confidence grades.

Whilst the quality of data will improve, the method of extraction and reporting remained consistent. The automated tool (developed during AIR12) to populate the base property tables has remained in place for AIR23.

Annex A details the Line Methodology followed to calculate the figures within Table 13 Lines 1-10.

Annex A – Line Methodology for Table 13 Lines 1-10

A) Sewerage Properties and Population

Line 1: Household Properties Connected during the Year

This line represents the number of new household (domestic) properties added to the sewerage network during the reporting year (Previously not connected to the sewerage system).

The figures are based on the New Connections reported by the Customer Connection Team (CCT). A series of filters was then applied to identify New Connections connected for sewerage, as per embedded document. It is NIW policy to install meters on all Non-Domestic New Connections.



Households properties connected during the year	5646
--	-------------

The number of new domestic connections for the year is 5646.

Line 2: Non-Household Properties Connected during the Year

This line represents the number of new non-household (non-domestic) properties added to the sewerage network during the reporting year (Previously not connected to the sewerage system).

The figures are based on the New Connections reported by the Customer Connection Team (CCT). A series of filters was then applied to identify New Connections connected for sewerage, as per embedded document. It is NIW policy to install meters on all Non-Domestic New Connections.

Non-Households properties connected during the year	143
--	------------

The number of new non-domestic connections for the year is 143.

B) Billing

Line 3: Households Billed Unmeasured Sewerage

Due to the deferral of domestic charging, NI Water does not bill households for unmeasured sewerage.

This figure refers to the average number of households billed for unmeasured sewerage within the supply area. Void properties have been excluded, so occupied numbers only used.

This is calculated from the monthly Rapid Property Summary for AIR23 (dated 31st March 2023) as embedded below.



Households Billed Unmeasured Sewerage	End March 2022	End March 2023
Household - Unmeasured	625649	632302
Household - Sewerage Only	9	9
Household - Measured – Not Charged (test meters)	5	5
Household - Measured	30871	30905
Household – Site Meters	1780	1860
Household - Unmeasured - Not Charged	12	12
Total	658326	665093
Average (Apr22/Apr23)	661710	

The figure represents the number of unmeasured domestic properties that would have been billed had charging been introduced.

Line 4: Households Billed Measured Sewerage

Due to the deferral of domestic charging, NI Water does not bill households for measured water. Therefore any household properties that would have been included in line 4 are included in line 3.

Households Billed Measured Sewerage	End March 2022	End March 2023
	0	0
Average (Apr22/Apr23)	0	

Line 5: Households Billed Sewerage

Due to the deferral of domestic charging, NI Water does not bill households for sewerage.

This figure excludes void properties and is calculated as below:
(Table 13 line 2 plus line 4)

Households Billed Sewerage	Average 22/23
Households billed unmeasured sewerage	661710
Households billed measured sewerage	0
Total	661710

This figure represents the number of domestic properties that would have been billed had charging been introduced.

Line 6 : Non-Households Billed Unmeasured Sewerage

This is the average number of non-households billed for unmeasured sewerage within the supply area, calculated from the Rapid Property Summary.

Figures are based on an average of Rapid End March 2022 and End March 2023 non-domestic unmeasured properties.

Non-Households Billed Unmeasured Sewerage	End March 2022	End March 2023
Non-Household - Unmeasured	8207	8098
Non-Household - Sewerage Only	14	14
Total	8221	8112
Average (Apr22/Apr23)	8167	

Line 7: Non-Households Billed Measured Sewerage

This refers to the average number of non-households billed for measured sewerage within the supply area, calculated from the Rapid Property Summary.

Figures are based on an average of Rapid End March 2022 and End March 2023 non-domestic measured properties.

Non-Households Billed Measured Sewerage	End March 2022	End March 2023
	26474	26474
Average (Apr22/Apr23)	26624	

Site metered properties are a subset of the overall non-domestic billed measured sewerage customer base, therefore not included in the figure above to avoid duplication (as per AIR23 Table 7). e.g. Where multiple businesses/properties are served through one site meter, only the landlord or business park management is considered as the customer.

Line 8: Non-Households Billed Sewerage

This is the total number of non-households billed for sewerage within NI Water's area, excluding void properties. It is a calculated figure of Table 13 Lines 6 and 7.

Non-Households Billed Sewerage	Average 22/23
Non-Households Billed Unmeasured Sewerage	8167
Non-Households Billed Measured Sewerage	26624
Total	34791

Line 9: Void Properties

This is the average number of properties, within the supply area, which are connected to the sewerage system but do not receive a charge, as there are no occupants – (void properties)

This is calculated from the Rapid Property Summary for AIR23 by calculating the gross number of properties connected to the sewerage system minus the total number occupied as calculated in lines 5 and 8.

Gross Number of Properties Connected to the Sewerage System	End March 2022	End March 2023
Household - Unmeasured	653962	660565
Household - Sewerage Only	10	10
Household – Measured - Not Charged (test meters)	5	5
Household - Measured	35123	35159
Household – Site Meters	2967	3089
Household - Unmeasured - Not Charged	13	13
Non-Household – Unmeasured	14528	13847
Non-Household – Sewerage only	19	18
Non-Household - Measured	29705	30077
Total	736332	742783
Average (Apr22/Apr23)	739558	

Trade Effluent customers have been excluded from the above figure as they could already be included in measured sewerage. Trade effluent is considered within other tables of the AIR22 submission.

Voids	End March 2023
Total Gross Properties (as above)	739558
Less total occupied properties (line 5+line 8) =	696500
Total	43058

C) Population

Line 10: Total Connected Population

This figure is a calculation of the total population multiplied by the properties connected to the sewerage system as a proportion of the properties connected for water (according to the Rapid Property Summary).

The average totals for gross occupied sewerage and water properties are obtained using the Rapid Property Summary for End March 2022 and End March 2023.

	End March 2022	End March 2023	Average 22/23	
Gross number of properties connected for sewerage	736332	742783	739558	
Gross number of properties connected for water (T7 L7 + T7 L11)	902692	910098	906395	
Calculation = Sewerage Properties / Water Properties	$= (739558 / 906395) * 100$		81.59%	Therefore, Total Connected Population equals (Table 7 Line 17 [1,912,090] * 81.59%) + Table 17a Line 2 [33,629]
				1,560,074+33,629
				1,593,703

As detailed above, the number of sewerage properties has been calculated as 81.59% of those with water; this percentage is then applied to the total water population from Table 7 Block C.

(Water population total (Source Peter Nicholl) X 81.59%) + Non-Resident Population (Source Lisa Woodman) = Table 13 line 10

$(1,912,090 \times 81.59\%) = 1,560,074 + 33,629 = 1,593,703$

T13 L10	1593.703
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Table 14 – Non-Financial Measures - Sewage Collected (Total)

Line 1 – Volume Unmeasured Household Sewage

This is calculated by assuming a 95% return to sewer of volume delivered to households factored by the percentage of the number of households billed for water against the number of households billed for sewerage services.

Sources

- AIR Table 10 Line 4 – Billed unmeasured household (MI/d)
- AIR Table 13 Line 3 – Households billed unmeasured sewage
- AIR Table 7 Line 3 – Households billed unmeasured water

Volume of unmeasured household sewage (MI/d) = AIR Table 10 Line 4 X 0.95 X $\frac{\text{AIR Table 13 Line 3}}{\text{AIR Table 7 Line 3}}$

It is worth noting that water Billed unmeasured household volume includes the MLE adjustment, meter under registration and supply pipe leakage.

The Billed Unmeasured Household volumes have been calculated by multiplying the average PCC figure for NI Water by the unmeasured household population. The source of the PCC figure is the NI Water domestic consumption monitor. The household population figure is sourced from the Northern Ireland Statistics and Research Agency (NISRA).

Underground Supply Pipe leakage has been applied to the billed unmeasured household volume component of this calculation.

A meter under registration factor of 6.44% has been applied to this total volume. This percentage has been provided by WRc, as a result of a project initiated by NI Water and is specific to NI Water's domestic consumption monitor meters.

The AIR23 volume reported for unmeasured household sewage is 264.35 MI/d. The volume reported in AIR22 was 278.59 MI/d.

Line 2 - Volume Unmeasured Non-Household Sewage

This is calculated by assuming a 95% return to sewer of volume delivered to non-households factored by the percentage of the number of non-households billed for water against the number of non-households billed for sewerage services.

Sources

- AIR Table 10 Line 5 – Billed unmeasured non-household (MI/d)
- AIR Table 13 Line 6 – Non-households billed unmeasured sewage
- AIR Table 7 Line 8 – Non-households billed unmeasured water

Volume of unmeasured Non-household sewage (MI/d) = AIR Table 10 Line 5 X 0.95 X $\frac{\text{AIR Table 13 Line 6}}{\text{AIR Table 7 Line 8}}$

It is worth noting that water Billed unmeasured non-household volume includes the MLE adjustment, meter under registration and supply pipe leakage.

The reported value for Billed Unmeasured Non-Household for AIR23 is 5.73 MI/d. The value reported in AIR22 was 5.14 MI/d.

The AIR23 volume reported for unmeasured non-household sewage is 4.67 MI/d. The volume reported in AIR22 was 4.17 MI/d.

Line 5 - Volume Measured Non-Household Domestic Sewerage

The information was extracted from the revised monthly 'Actuals' Report, which incorporates both:

- Actual billed sewerage discharge M³ as per bills.
- Actual domestic sewerage allowance M³ applied per bills.

The calculated sewerage discharge volume was 15,126,492 M³ converted to mega litres per day of 41.44 MI/d.

Sewerage volume is 20% (1,884,110 M³ | 5.1MI/d) higher than last year.

The increase in sewerage volume is primarily attributable to:

- The residual impact of the COVID19 pandemic during 2021/22 and the subsequent removal of social and economic restrictions.
- Economic stimulation from the Government £600 energy support scheme.

Industry Classifications with a material year on year increase are detailed below:

- 0.5 million M³ / 24% increase - Distribution/Hotel/Catering (Retail & Hospitality)
- 1.1 million M³ / 18% increase - Other Services (Public Sector – Local Councils /Education Library Boards etc.)

This line has been allocated a confidence grade of A2 as it has an element of manual manipulation of raw data from Rapid report to derive the full year discharge M³.

Line 6 - Volume Trade Effluent

Sources

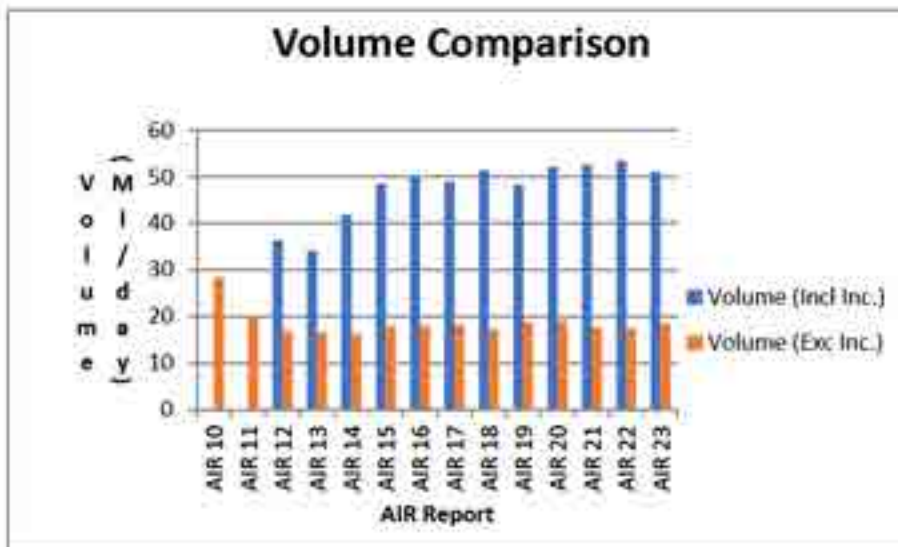
The names of individual traders were taken from Primary Source of Trade Effluent Customers (PSTEC). This database is updated by NIW on a regular basis. The chargeable volume of each trader was supplied by our Billing Section in Metered Accounts Management. Where no volumes were available, the consented volumes were used. This applied to 74 traders out of the 684 assessed. The total number of traders has increased from 674 in AIR22 to 684 in AIR23.

The total volumes for AIR 22 and 23 are detailed below:

AIR 22 Volume = 53.48 MI/day

AIR 23 Volume = 51.12 MI/day

In order to analyse these figures it has been decided to break them down into volumes including [REDACTED] and volumes without, to better identify the current trends in data.



There has been a 3.34 Ml/day decrease of effluent discharged from [REDACTED] during this period (36.00) Ml/day to 32.66 Ml/day). Comparing the total AIR 23 volume to the AIR 22 volume there has been an overall decrease of 2.36 Ml/day. With the volumes for [REDACTED] excluded there has been an increase of 0.98 Ml/day.

Summary of Volumes changes between AIR22 and AIR23 excluding the [REDACTED] are detailed below:



There has been a minor volume increase in the reporting period for NIW (0.69 Ml/Day) and PPP (0.29 Ml/Day) but when factored with the decrease in volume at Duncrue Incinerator (reduction of 3.34 Ml/Day), this results in a Net reduction of 2.36 Ml/Day in total volume. A meter fault with measuring apparatus at Duncrue Incinerator during the reporting period has resulted in some volumetric data being estimated, which will have contributed to loss of accuracy.

Line 7 – Volume of Waste Water Returned

This line is a calculation of the figures from lines 3, 4, 5 and 6. The components of this calculation received confidence grades of A2, A1, A2 and B2 respectively. As B2 was the lowest confidence grade for a component, this line has been allocated a confidence grade of B2.

Line 8 – Volume of Road Drainage returned

In line with the proposed methodology, we carried out the following steps:

1. Based on information provided by Road Service, determined the surface area of all roads and footpaths in urban areas (i.e. within the 40mph speed limit) as follows:
 - Urban road surface area 39,264,486 m².
 - Urban footway surface area 17,022,987 m².
 - Total urban road & footway surface area 56,287,473 m².
2. Obtained Northern Ireland average annual rainfall data from the Met Office over the last 10 years – 1.14m.

3. Using the above, calculated the annual volume of rain falling on these surfaces and hence the run-off from roads & footpaths discharged to NIW sewers and storm drains.
 - $56,287,473 \times 1.14 = 64,167,719\text{m}^3$ (175.80 MLD)
4. From data extracted from NIW's network information management system (NIMS) for the largest 105 urban areas in Northern Ireland (i.e. all areas with greater than 1,000 population) we determined the following:
 - Aggregate length of combined sewers = 4,378km
 - Aggregate length of stormwater sewers = 4,317 km

Both of these figures were adjusted to allow for those stormwater sewers which –rather than discharging to a watercourse – are connected into the combined system.

Applying the assumption that the sewer lengths represent a 'proxy' estimate of road lengths, this yields an approximate **50:50** split between areas draining to combined systems and those draining to separate systems.

5. Using points 3 and 4 the volumes of Road Drainage returned are calculated as follows:
 - Volume returned to combined sewer = 87.9 MLD
 - Volume returned to storm sewer = 87.9 MLD
 - Total Volume returned to sewer = 175.80 MLD

Table 15 - Sewage Treatment

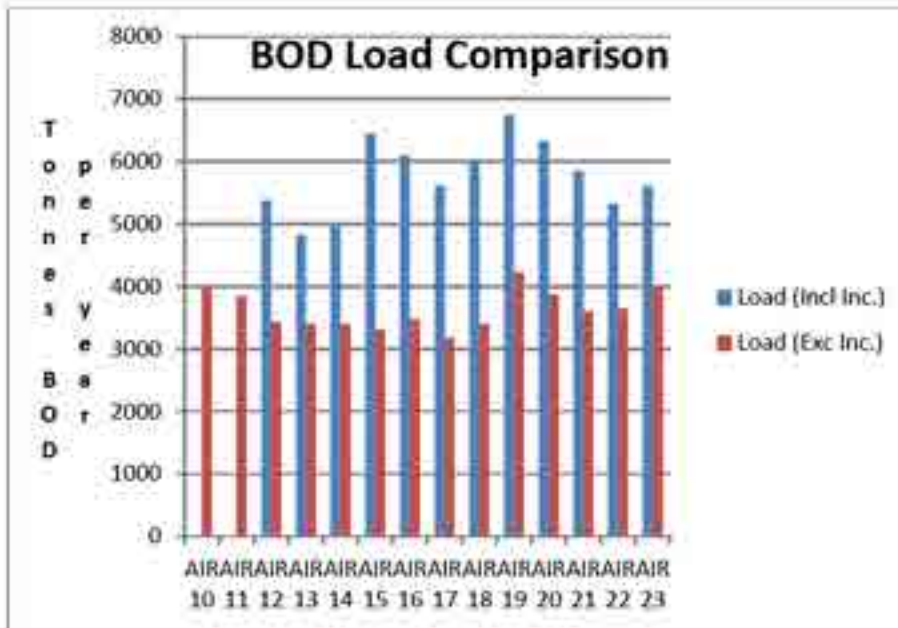
Line 1 - Trade effluent load receiving secondary treatment (BOD/year)

The names of individual traders were taken from the Primary Source of Trade Effluent Customers (PSTEC). This database is updated by NIW on a regular basis. The actual BOD strength of each sampled trader was used for the calculation of the load. Where an actual BOD strength was not available i.e. for sites that are not sampled, the discharge was assumed to be either standard strength, fixed industry strength or bespoke strength, a calculated BOD strength using the conversion factor detailed in the methodology document was used.

The loading for this year's and the previous year's reports were as follows:

AIR22 = 5233.0 tonnes BOD/year
AIR23 = 5605.0 tonnes BOD/year

In order to analyse these figures they have been separated to show loading including [redacted] and loading excluding [redacted]



The loading from [redacted] has decreased by 69.47 tonnes BOD/year from 1683.87 tonnes BOD/year (AIR22) to 1614.40 tonnes BOD/year (AIR23). Overall the loading for AIR23 increased by 355.40 tonnes BOD/year. With the decrease from the incinerator removed from this figure, the difference between the two reports is an increase of 424.87 tonnes BOD/year.

As detailed in the methodology, the Fixed Strength COD's were then converted to a BOD strength. These calculated BOD strengths will be kept the same for future AIR reports unless there is a significant variation from the rolling 5 year average of the Mogden sample results. This will allow for easier comparison in BOD loading year on year. The strengths in the report are detailed below:

Industry Type	Settled COD (mg/l)	BOD (mg/l)
Vehicle Wash (Jet)	517	386
Vehicle Wash (Roller)	108	81
Vehicle Wash (Combined)	313	234
Industrial Laundry	722	539
Swimming Pool Filter Backwash	36	27
Small Brewery	2648	1976
Cattlemarts	1404	1048
Wheelie Bin Cleaners	406	303
Launderettes	478	357
Standard Strength	260	194

Summary of BOD loading changes between AIR22 and AIR23 are detailed below:



There was an increase of 145.30 tonnes BOD/year for NE PPP Sampled and Charged traders, and a decrease of 5.03 tonnes BOD/year for NE PPP Standard Charge traders. There was total decrease of 35.32 tonnes BOD/year across NIW Sampled and Charged and Standard Charge traders for the NE area.

In the NW region there was a decrease of 47.87 tonnes BOD/year for Sampled and Charged Traders, but a increase on 21.47 tonnes BOD/year for Standard Charge customers in the same area.

There was an increase of 91.00 tonnes BOD/year for the South PPP Sampled and Charged traders and a decrease of 6.88 tonnes BOD/year for the South Standard Charge PPP traders. Similarly, there was an increase of 265.98 tonnes BOD/year for the South NIW Sampled and Charged traders, and a decrease of 3.78 tonnes BOD/year for the Standards Charge NIW traders in the same area.

The net of these changes equates to 424.87 tonnes BOD/year increase in AIR loadings with the incinerator figures excluded.

Line 2 - 7 – Sewage loads

NIW Only

It should be noted that the banding of the WWTWs for this table is on the same basis as that used for Table 17c. It is based on the latest set of Populations Equivalent minus the allowance for the tourist population. Since AIR22, PEs for 195 WWTWs have been updated.

The allowance for the tourist population, which has been deducted for the purposes of band size determination, has been the proportion of PE allocated to hotels, and caravan and tent pitches only. No deduction has been made for commuters as such information has not been captured.

The loads reported in this table are the sums of the loads received by each WWTWs or outfall in each particular category, and hence include the proportion of PE allocated to hotels, and caravan and tent pitches therefore loads reported in this table include the non-resident population. The method for computing loads from NIW only WWTWs is the same as was

implemented for AIR22, there has been no inclusion of re-circulated sludge/sludge liquors in the loads reported.

The Water and Sewerage Services (NI) Order 2006 designated that the discharge from hospitals, nursing homes & clinics should no longer be considered as Trade Effluent, therefore for AIR23 these have been removed from the Trade Effluent Submission. For the majority of hospitals a certain percentage of hospital discharges has been included due to discharges from x-ray departments and bathing pools. Since AIR12, the AIR11 Trade Information, for nursing homes and clinics, has been maintained as there was no other avenue available to obtain this information. Similarly the PEs for the hospitals has been factored up to 100% of their total discharge to give a more accurate figure of load discharging to the sewerage network.

NIW has information pertaining to septic tank imports to its WWTWs. In summary of the 17 WWTWs that are septic tank imports centres 4 receive the sludge at the head of the inlet works and the remaining 13 receive it via sludge reception centres

For AIR23 conversion factors, received from our scientific staff, were used to convert the septic tank imports to PEs for the 4 WWTWs where imports are discharged directly to the inlet works.

Allowance at the other 13 WWTWs is not being made as there is no way of computing the PE of the supernatant return as a result of the septic tank imports.

The WWTWs where this sludge was discharged at the head of the works were Belfast, Glenstall, Lisburn (New Holland) and Strabane. A conversion was used to get an equivalent PE which was adopted for these sites for AIR13. For AIR23 septic tank imports at Downpatrick WwTW no longer discharged at the head of the works following refurbishment of sludge import screen, with septic tank imports received at the sludge reception centre.

An assumption of 1% dry solids was made for Suspended Solid (SS) loading and an equivalent PE based on 60g of SS solids per PE was used.

NIW Name	CAR	Site Car Id	Total Volume m3/Yr	PE Calculation			
				Total Volume m3/day	SS Loading (Assume 1% Dry Solids) m3/day	SS Loading kg/day	PE (SS/0.06)
Belfast		S0345	6911.737	18.94	0.19	189.36	3156
Glenstall		S1109	5612.331	15.38	0.15	153.76	2563
Lisburn (New Holland)		S0329	4028.797	11.04	0.11	110.38	1840
Strabane		S3213	20.033	0.05	0.00	0.55	9

NIW has also information pertaining to Sludge Imports to its WWTWs however due to the fact that the supernatant return is metered at only a small number of WWTWs, it would

appear that these meters require verification and perhaps calibration. Therefore no allowance is being made for PE resulting from sludge imports at these works.

The Reporters Report on AIR09 recommended that NIW correct possible overestimation of total WWTW loads due to the inclusion of offices/commercial premises. The majority of the residential and non-residential element of PEs used to calculate tables 17c and 17d was based on Pointer information from MapInfo. However it should be noted that the non-residential element of Pointer is made up of both commercial and unknown properties. At this present time it is not known what proportion of the unknowns are actually residential and which are non-residential and therefore it has been decided to include both elements when calculating the PEs for the band sizes. It is difficult to estimate the proportion of load at a WWTW due to commuters, or the load which should be deducted from/added to a particular WWTW due to population commuting out of/into the catchments. Hence no allowance to WWTWs loads has been made either way for Table 17d.

The only allowance made for newly connected properties is where a population studies have been carried out for a drainage catchment during the reporting year and the recommendations have been considered and agreed upon. Where a population study has not been completed for a drainage catchment no allowance has been made for newly connected properties. It should be noted that some drainage catchments may not have had a population review undertaken for several years. Going forward the exercise explained under 'Future Improvement' above will address this shortfall.

The table below gives a breakdown of the total load received by the company in '000 tonnes of BOD per annum, by each component used to build up the reported data. Please note the total equates to Line 5 (minor discrepancy due to rounding up of fractions).

Components used in build-up of Total Load	Total PE	000 tonnes of BOD per annum
Residential	1,391,866	30,481.87
Non-Residential	229,688	5,030.18
Hotels	24,253	531.13
Educational (Play/Nursery/Primary/ Secondary schools)	78,769	1,725.05
Trade PE	222,712	4,877.39
Large (>7500m3) Consumers	125,484	2,748.1
Caravan Parks	29,866	654.07
Sludge Import / Export / Supernatant (Sludge Import to Inlet of Works – to 5 WWTWs 9,286 PE)	24,723	541.43
Total (Line 5)	2,127,361	46,589.22

Line 2 - Total load receiving secondary treatment

The table below shows the changes in WWTWs receiving secondary treatment since AIR22 for Line 2. Individual changes 15% or greater listed. NB. Change in PE (-Ve AIR23 PE Higher).

Name of Works	CAR Site ID	PE Change	Comments
Ardglass (WWTW)	S00268	395	TE Updated

Name of Works	CAR Site ID	PE Change	Comments
Ards North	S06177	-4778	Design PE updated follow capital upgrade
Aughnacloy	S03007	-331	ALP PE Review
Ballywalter(Retention Tank)	S05189	2427	Pumpaway to new Ards North works
Bovean	S02793	5	Pop study undertaken as part of Rural WW project
Carrowdore	S00236	1199	Pumpaway to new Ards North works
Castleberg (WWTW)	S03042	-1092	TE Updated
Castletown (WWTW)	S03046	3	Pop study undertaken as part of Rural WW project
Feumore (WWTW)	S02406	-15	Actual PE updated with pointer data
Killinchy (WWTW)	S00252	-640.3	TE Updated
Knockanroe	S01585	-4	Pop study undertaken as part of Rural WW project
Lismoyle	S01625	4	Pop study undertaken as part of Rural WW project
Loughan Road (Tyrone)	S03175	6	Pop study undertaken as part of Rural WW project
Newry (WWTW)	S02685	-27967	Pop study undertaken as part of capital upgrade project TE Updated
Old Green	S01448	-27	Pop study undertaken as part of Rural WW project
Tullynakill Road	S05280	6	Pop study undertaken as part of Rural WW project
Tullyroan	S02600	-7	TE Updated
Whitehouse	S00265	-23000	Population Study undertaken by LWWP. TE Updated
Total for WwTW's with less than 15% PE Change	N/A	-59,347	150no. WwTW's from TE Updates and PE Reviews
	TOTAL	-113,163.3	Change in Line 2 since AIR22

The change in PE equates to an increase in load of 2,478.3t BOD/yr (i.e. 113,163.3 x 60 (for 60g/hd/day) /1000/1000 x 365) from AIR22 to AIR23, allowing for rounding up and down and conversions.

Difference between AIR23 and AIR22 values (to 2 decimal places):

Line 2 for AIR23-	45,832.2
	43,353.9
Line 2 for AIR22 -	
Total Difference -	2,478.3

Note – The difference in the above totals are due to rounding of values.

Line 3 - Total load receiving primary treatment only

The table below shows the changes in WWTWs since AIR22 that affects load entering the system for Line 3. NB. Individual changes 15% or greater listed. Change in PE (-ve AIR23 PE Higher).

Name of Works	CAR ID	PE Change	Comments
Concession Road	S02260	5.6	Pop study undertaken as part of Rural WW project
Inishargy Road(36-48)	S00211	7.2	Pop study undertaken as part of Rural WW project
Ravara Road (9-19)	S00242	-2.7	Actual PE updated with pointer data
Total for WwtW's with less than 15% PE Change	N/A	105	7no. WwtW's from TE Updates and PE Reviews
	TOTAL	115.1	Change in Line 4 since AIR22

The change in PE equates to an increase in load of 2.52t BOD/yr (i.e. 115.1 x 60 (for 60g/hd/day) /1000/1000 x 365) from AIR22 to AIR23, allowing for rounding up and down and conversions.

Difference between AIR23 and AIR22:

Line 3 for AIR23 -	210.38
Line 3 for AIR22 -	212.9
Total Difference -	2.52

Line 4 - Total load receiving preliminary treatment only

The table below shows the changes in WWTWs since AIR22 that affects load entering the system for Line 4. NB. Individual changes 15% or greater listed. Change in PE (-ve AIR23 PE Higher).

Name of Works	CAR ID	PE Change	Comments
Total for WwtW's with less than 15% PE Change	N/A	-53.8	3no. WwtW's from TE Updates and PE Reviews
	TOTAL	-53.8	Change in Line 4 since AIR22

The change in PE equates to an increase in load of 1.17t BOD/yr (i.e. 53.8 x 60 (for 60g/hd/day) /1000/1000 x 365) from AIR22 to AIR23, allowing for rounding up and down and conversions.

Difference between AIR23 and AIR22:

Line 4 for AIR23-	452.14
Line 4 for AIR22 -	451.0
Total Difference -	1.14

Line 5 - Total load entering sewerage system

The table below shows the changes in WWTWs since AIR22 that affects load entering the system for Line 5. NB. Change in PE (-Ve AIR23 PE Higher). Individual changes 15% or greater listed.

Name of Works	CAR ID	PE Change	Comments
Ardglass (WWTW)	S00268	395.3	TE Updated
Ards North	S06177	-4777.9	Design PE updated follow capital upgrade
Aughnacloy	S03007	-331.0	ALP PE Review
Ballywalter(Retention Tank)	S05189	2427.3	Pumpaway to new Ards North works
Ballywhiskin (Retention Tank)	S00827	1149.2	Pumpaway to new Ards North works
Bovean	S02793	4.6	Pop study undertaken as part of Rural WW project
Carrowdore	S00236	1199.0	Pumpaway to new Ards North works
Castlederg (WWTW)	S03042	-1091.8	TE Updated
Castletown (WWTW)	S03046	3.1	Pop study undertaken as part of Rural WW project
Concession Road	S02260	5.6	Pop study undertaken as part of Rural WW project
Feumore (WWTW)	S02406	-15.5	Actual PE updated with pointer data
Inishargy Road(36-48)	S00211	7.2	Pop study undertaken as part of Rural WW project
Killinchy (WWTW)	S00252	-640	Pop study undertaken as part of Rural WW project
Knockanroe	S01585	-4.0	Pop study undertaken as part of Rural WW project
Lismoyle	S01625	3.9	Pop study undertaken as part of Rural WW project
Loughan Road (Tyrone)	S03175	5.5	Pop study undertaken as part of Rural WW project
Newry (WWTW)	S02685	-27966.5	Pop study undertaken as part of capital upgrade project TE Updated
Old Green	S01448	-26.5	Pop study undertaken as part of Rural WW project
Ravara Road (9-19)	S00242	-2.7	Actual PE updated with pointer data
Tullynakill Road	S05280	5.8	Pop study undertaken as part of Rural WW project
Tullyroan	S02600	-6.8	TE Updated
Whitehouse	S00265	-23000.2	Population Study undertaken by LWWP. TE Updated
Total for WwtW's with less than 15% PE Change	N/A	-59,171.4	160no. WwtW's from TE Updates and PE Reviews
	Total	-111,827.8-	Change in Line 5 PE since AIR22

The change in PE equates to an increase in load of 2,449.02t BOD/yr (i.e. 111,827.8 x 60 (for 60g/hd/day) /1000/1000 x 365) from AIR22 to AIR23, allowing for rounding up and down and conversions.

Difference between AIR23 and AIR22:

Line 5 for AIR23 -	46,589.22
Line 5 for AIR22 -	44,140.18
Total Difference -	2,449.04

Note – The difference in the above totals are due to rounding of values.

Line 6 - Equivalent population served (resident)

The table below shows the changes in WWTWs since AIR22 that affects equivalent population served (resident) for Line 6. Individual changes 15% or greater listed.

Name of Works	CAR ID	PE Change	Comments
Ardglass (WWTW)	S00268	395.34	TE Updated
Ards North	S06177	-3913.89	Design PE updated follow capital upgrade
Aughnacloy	S03007	-331.01	ALP on-site PE review
Ballywalter(Retention Tank)	S05189	2427.30	Pumpaway to new Ards North works
Ballywhiskin (Retention Tank)	S00827	285.17	Pumpaway to new Ards North works
Bovean	S02793	4.56	Pop study undertaken as part of Rural WW project
Carrowdore	S00236	1198.95	Pumpaway to new Ards North works
Castleberg (WWTW)	S03042	-1091.83	TE Updated
Castletown (WWTW)	S03046	3.10	Pop study undertaken as part of Rural WW project
Concession Road	S02260	5.64	Pop study undertaken as part of Rural WW project
Feumore (WWTW)	S02406	-15.45	Actual PE updated with pointer data
Inishargy Road(36-48)	S00211	7.20	Actual PE updated with pointer data
Killinchy (WWTW)	S00252	-640.26	Pop study undertaken as part of Rural WW project
Knockanroe	S01585	-4.00	Actual PE updated with pointer data
Lismoyle	S01625	3.87	Pop study undertaken as part of Rural WW project
Loughan Road (Tyrone)	S03175	5.50	Pop study undertaken as part of Rural WW project
Newry (WWTW)	S02685	-27966.51	Pop study undertaken as part of capital upgrade project TE Updated

Name of Works	CAR ID	PE Change	Comments
Old Green	S01448	-26.51	Pop study undertaken as part of Rural WW project
Ravara Road (9-19)	S00242	-2.72	Actual PE updated with pointer data
Tullynakill Road	S05280	5.78	Pop study undertaken as part of Rural WW project
Tullyroan	S02600	-6.78	TE Updated
Whitehouse	S00265	-22935.16	Population Study undertaken by LWWP. TE Updated
Total for WwTW's with less than 15% PE Change	N/A	-52,023.36	160no. WwTW's from TE Updates and PE Reviews
	Total	-104,615.07	Change in Line 6 PE since AIR22

Difference between AIR23 and AIR22:

Line 6 for AIR23 -	2,073,243
Line 6 for AIR22 -	1,968,628
Total Difference -	104,615

Note – The difference in the above totals are due to rounding of values.

Line 7 - Equivalent population served (resident) (Numerical consents)

The table below shows the changes in WWTWs PEs since AIR22 that affects equivalent population served (resident) with numerical consents for Line 7. NB. Change in PE (-Ve AIR23 PE Higher). Individual changes 15% or greater listed.

Name of Works	CAR ID	PE Change	Comments
Ardglass (WWTW)	S00268	395.34	TE Updated
Aughnacloy	S03007	-331.01	ALP on-site PE review
Carrowdore	S00236	1198.95	Pumpaway to new Ards North works
Castlederg (WWTW)	S03042	-1091.83	TE Updated
Killinchy (WWTW)	S00252	-640.26	TE Updated
Newry (WWTW)	S02685	-27966.51	Pop study undertaken as part of capital upgrade project TE Updated
Whitehouse	S00265	-22935.16	Population Study undertaken by LWWP. TE Updated
Total for WwTW's with less than 15% PE Change	N/A	-52,030.38	129no. WwTW's from TE Updates and PE Reviews
	Total	-103,400.86	Change in Line 7 PE since AIR22

Difference between AIR23 and AIR22:

Line 7 for AIR23 -	2,007,750
Line 7 for AIR22 -	1,904,350
Total Difference -	103,400

Note – The difference in the above totals are due to rounding of values.

Line 8 - Number of sewage treatment works

The number of WWTWs of 1015, on this line differs from the total of 1021 as shown in Table 17c, as the former does not include the screened outfalls (1 No.) and the unscreened outfalls (5 No.), as per the definition for this line.

The table below shows the changes in numbers of WWTWs since AIR22 for Line 8.

Name of Works	CAR ID	Change in Nr of WwTWs	Comments
Ards North	S06177	1	New works as part of Ards North Project.
Ballywalter(Retention Tank)	S05189	-1	Pumpaway to new Ards North works
Carrowdore	S00236	-1	Pumpaway to new Ards North works
		Net decrease	-1

Difference between AIR23 and AIR22:

Line 8 for AIR23 -	1,015
Line 8 for AIR22 -	1,016
Total Difference -	-1

Line 9 – Treatment capacity available

The table below shows the changes in Treatment Capacity Available at WWTWs since AIR21 for Line 9. NB. Change in PE (-Ve AIR22 PE Higher).

Name of Works	CAR ID	PE Change	Comments
Ballycairn (Down)	S00336	-6	Design PE updated following upgrade under RWwIP
Ballygarvigan	S00228	-31	Design PE updated following upgrade under RWwIP
Ballygowan		-1,513	Design PE updated following Capital Upgrade
Ballylumford Cottages	S00260	7	Design PE updated following upgrade under RWwIP
Ballymacawley	S02560	31	Design PE updated following upgrade under RWwIP
Ballywalter(Retention Tank)	S05189	2,115	Design PE updated following construction of new Ards North WwTW, Ballywalter WwTW is now a pumpaway

Name of Works	CAR ID	PE Change	Comments
Carrowdore	S00236	1,500	Design PE updated following construction of new Ards North WwTW, Carrowdore WwTW is now a pumpaway
Drumneechy	S03097	-5	Design PE updated following upgrade under RWwIP
Ferris Bay (50)	S04084	10	Design PE updated following upgrade under RWwIP
Gortereghy	S01110	13	Design PE updated following upgrade under RWwIP
Hillcrest (Antrim)	S01111	-13	Design PE updated following upgrade under RWwIP
Loughries	S00230	-34	Design PE updated following Capital Upgrade
Magherahoney	S01117	27	Design PE updated following upgrade under RWwIP
Maglion Terrace	S02147	-10	Design PE updated following upgrade under RWwIP
Racavan	S01451	3	Design PE updated following upgrade under RWwIP
Ards North	S06177	-8,508	Design PE updated following construction of new WwTW
	Total	-6,414	Change in Line 9 PE since AIR22

The change in PE equates to an increase in load of 0.38t BOD/day (i.e. -6,416 x 60 for 60g/hd/day /1000/1000) from AIR22 to AIR23.

Difference between AIR23 and AIR22:

Line 9 for AIR23 -	136.2
Line 9 for AIR22 -	135.8
Total Difference -	0.4

Note – The difference in the above totals are due to rounding of values

Confidence Grade

The confidence grade for line 8 remains as A2. There may still be a number of small WWTWs which are perhaps under the ownership of the NI Housing Executive or have become private due to customers perhaps installing their own private septic tanks or converting 2 houses into 1. Hence a small reduction in confidence grade i.e. A2 is viewed as necessary to reflect this uncertainty, especially as 692WWTWs (excluding tourist PE) are listed as having a PE of less than 100.

Lines 14- 17 Sewage – Sludge Disposal**NIW Only****Line 14 – Percentage unsatisfactory sludge disposal**

Northern Ireland Water (NIW) continues to have zero unsatisfactory sludge disposals. NIW has again assigned a confidence grade of A1 to percentage unsatisfactory sludge disposal as the total is zero.

Line 15 – Total sewage sludge produced

Sewage cake is produced from 8Nr. NIW sites and transported to PPP Contractor for incineration. Liquid sludge is also transported to the PPP Contractor (Ballynacor & Duncrue Street, Belfast) where the Contractor measures and processes same for disposal (including Belfast WwTW Indigenous).

For the purpose of AIR 23 submission Table 15 (NIW Only) relates to sewage sludge produced for 2022/23 (tds) as recorded by PPP and monthly by Ww Area Sludge Officers (reconciled using the SLS) and presented in the monthly Sludge Management Report along with an estimated quantity of WwTW & WwPS grit & screenings which are routinely removed as part of the sewage treatment process and disposed of separately under Tender C1088 (Collection, Transportation and Disposal of Waste by skip). The total estimated quantity of grit and screenings removed as part of the sewage treatment process and disposed of under Tender C1088 has been collated on Worksheet 4 for the period of 2022/23.

Line 16 - Total sewage sludge received from NI Water

Northern Ireland Water is contracted to transfer all sewage liquid and cake to PPP. Sewage cake is produced from 8Nr. NIW sites and transported to PPP Contractor for incineration. Liquid sludge is also transported to the PPP Contractor (Ballynacor & Duncrue Street, Belfast) where the Contractor measures and processes same for disposal (including Belfast WwTW Indigenous). That element of the sewage treatment production is reported and subsequently combined for the Total T15 submission. This data is also submitted through PPP reporting in T42.

Line 17 - Total sewage sludge disposal

Northern Ireland Water disposes the same amount of sludge as that produced (Line 15). NIW remains committed to compliance with the requirements of the “Safe Sludge Matrix”. A total of 97.4% of sewage sludge to PPP during 2022/23. The total estimated quantity of grit and screenings removed as part of the sewage treatment process and disposed of separately under Tender C1088 (Collection, Transportation and Disposal of Waste by skip) has been collated and disposed to landfill & other (ReCon) in 2022/23.

PPP Only**Line 2 - Total load receiving secondary treatment**

The total loads receiving secondary treatment have changed to reflect the actual load discharged from the NI Water sewer network to the PPP works. There has been a reduction of 419.6 Tonnes BOD received by the Omega wastewater sites and 1709.9 Tonnes BOD reduction at the Kinnegar Wastewater site, which was primarily due to the cessation of recycling of stored sludges on-site which had occurred in AIR22 period [see Commentary on Table 17D].

Line 6 - Equivalent population served (resident)

The change in the Equivalent Population Served (resident) receiving treatment reflects the change in load received from the NIW Catchments in line with the variation to the Loading

received at the works (Line 2 above). The reason for the large reduction in p.e. is largely due to the cessation of recycling of stored Sludges on-site at Kinnegar WwTW which distorted AIR22 reporting [see Commentary on Table 17D].

Line 7 - Equivalent population served (resident) (Numerical consents)

As all the PPP WwTW's have numerical consents, the change reflects the same change in Line 6 above for the same reasons. [Refer to Lines 2 & 6 above].

Lines 14- 17 Sewage – Sludge Disposal

PPP only

Line 14

No change.

Line 15 - Total sewage sludge produced

The changes in sludge produced data reflect the actual loads delivered to the PPP contractor from within the NI Water sewer network, outside the PPP contractor's control. There are minor additions for Screenings and Grit which were initially reported in AIR13 and subsequently in AIR submissions since by the Contractors.

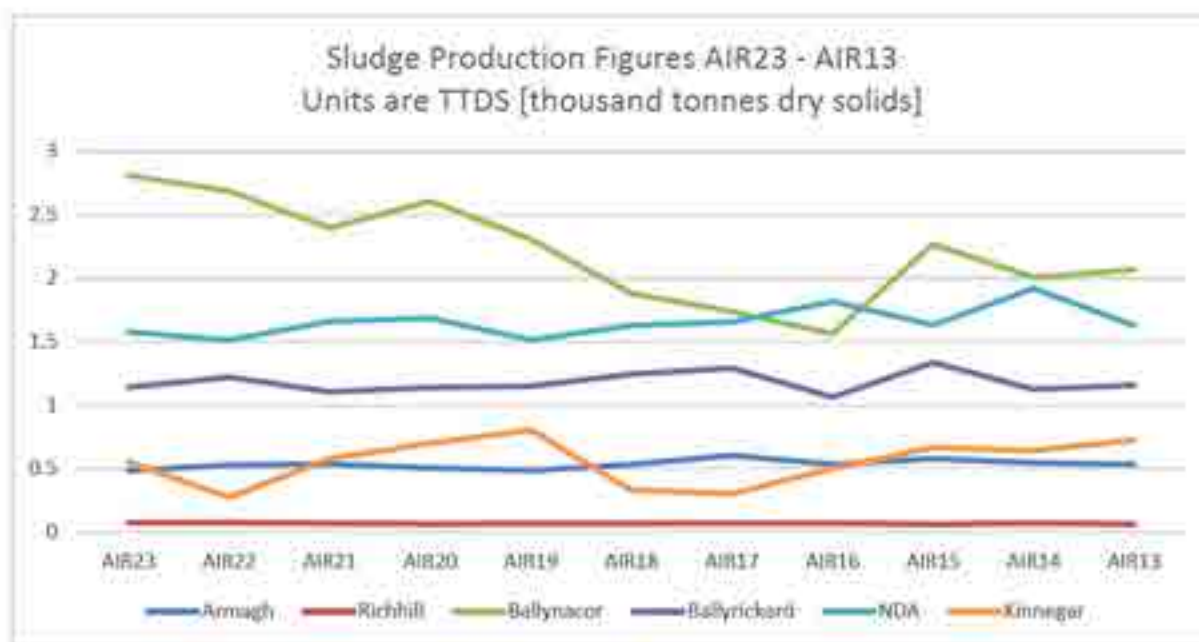
Note: The entry on Line 15 refers to Omega Sludges only as Kinnegar is viewed as a NI Water Sludge Source within this Table.

The variations are tabulated below;

PPP Production	AIR23	AIR22	AIR21	AIR20	AIR19	AIR18	AIR17	AIR16	AIR15	AIR14	AIR13	AIR12	AIR11
Armagh WWTW	0.486	0.529	0.537	0.506	0.486	0.534	0.605	0.535	0.579	0.547	0.535	0.570	0.759
Richhill WWTW	0.074	0.076	0.070	0.066	0.067	0.068	0.071	0.071	0.063	0.071	0.065	0.066	0.213
Ballynacor WWTW	2.812	2.687	2.398	2.607	2.307	1.882	1.739	1.564	2.269	2.007	2.069	3.330	2.468
Ballyrickard WWTW	1.141	1.221	1.107	1.140	1.150	1.246	1.293	1.064	1.337	1.126	1.158	1.225	1.627
NDA WWTW	1.577	1.513	1.661	1.687	1.514	1.629	1.656	1.818	1.633	1.920	1.628	1.559	1.753
Kinnegar WWTW	0.552	0.275	0.580	0.699	0.805	0.331	0.302	0.501	0.668	0.643	0.726	0.823	0.792
Omega Screenings/Grit	0.181	0.162	0.156	0.141	0.220	0.233	0.206	0.083	0.083	0.088	0.106		
Kinnegar Screenings/Grit	0.023	0.032	0.029	0.030	0.033	0.035	0.058	0.049	0.057	0.047	0.022		
Totals	6.846	6.495	6.538	6.876	6.582	5.958	5.930	5.685	6.689	6.449	6.309	7.573	7.612

The changes in sludge production [shown below in graphical form] records data for Omega reflect a probable combination of :

- (i) Cumulative tolerances in the representative nature of dry solids sampling and flowmeter accuracy (particularly on smaller sites)
- (ii) a mix of improved methodologies and record keeping systems for liquid and cake movements (as demanded by the Omega contract payment processes) implemented by end of AIR11, and
- (iii) the loads delivered to the PPP contractor from the NI Water sewer network, outside the PPP contractor's control, and
- (iv) The timing of data capture, where prolonged dry periods can have a fluctuating effect from year to year on absolute values.



Kinnegar WwTW sludge production figures in the AIR23 period have recovered when compared with the AIR22 period as Kinnegar WwTW actively engaged in the transition process and has engaged in substantial remedial work. The extended period for resolution was exacerbated by the Brexit influence, which resulted in replacement parts being delayed in transit. The retained sludge has been processed at a more standardised and sustainable rate, albeit that an estimated 800 TDS [including the AIR21 120 TDS shortfall contribution] had to be retained with the process within the Storm Tanks. Some of this Sludge had assisted with the increase in SBR MLSS from 3.6 to 4.5g/L, to suit the loading requirement. Due to the Grit Trap requiring substantial maintenance, no grit is reported as removed from the Kinnegar Site during the AIR23 period. However, this should change during the next AIR period as the grit removal plant has been reinstated during April 2023.

Kinnegar aside, the Omega sites continue to present a reasonably static trend over the last 5 year AIR periods. The notable exception to the trend is Ballynacor WwTW, which presents a clear upward trend from AIR22 to AIR23, the site has now returned to an increase over previous levels. Given the treatment processes have not changed in the same period and effluent compliance has been maintained, it could be considered the overall loading on the WwTW tends towards increased loading from within the catchment and/or from tankered imports, compared with the trend shown in AIR16-18. This is supported by the data behind Line 2 (Load Receiving Secondary Treatment) and is suggestive of the scale and variance of both domestic and trade discharges in this catchment having previously been impacted by the Covid-19 Pandemic and returning to normal.

Line 16 - Total sewage sludge received from NI Water

This reflects the change in sludge quantities received by the PPP Contractor from the Company and includes that received from Kinnegar concession, which is treated as Company sludge for the purposes of the Omega PPP Contractor's records.

Line 17 - Total sewage sludge disposal

In AIR22 the Omega Contractor reported a sludge disposal of 37.1 ttds [37.108 ttds]. This year (AIR23) the reported figure is 36.7 ttds [36.706 ttds]; these Omega based figures also exclude the Screenings and Grit removal for both the Kinnegar site and the NIW sites, where each of these parties disposes of these directly, rather than through the Omega contract.

In a previous year [AIR17] the Reporter made a recommendation that the Incinerator Returns (centrate liquors returned to Belfast WWTW) be deducted from the Total Sludge Disposal collation. For the period of AIR23 the Incinerator Returns have been calculated to be 1.035 ttds [AIR22 – 1.768 ttds: Confidence Grade for this estimation would be approx C5 at best, given the extremely limited data set on which the calculations have been made, which could make this actual total sewage sludge disposal figure 35.671 ttds [AIR22 – 36.173 ttds]. However, the Company has declined to use this amended figure as it is considered wildly unreliable, is not indicative of the Company's costs for PPP services and cannot be used to compare or interrogate trends as Incinerator Returns were not collated or included for the previous year's returns prior to AIR18.

The comparable ttds total sludge disposal variance against AIR22 is considered to be a combination of:

- (i) Timing of data capture (sludges being collected and receipted for disposal)
- (ii) Accurate measurement and records demanded under the Omega contract
- (iii) Variations in quantities of sludge produced across PPP and NIW WwTWs.
- (iv) Reporting of Screenings and Grit, and modification to accuracy where possible.
- (v) Reporter requirement that the total Sludge Disposal calculation is adjusted to remove the Incinerator Return Loading which is essentially a double count, has not impacted on this, as it has not been included.
- (vi) The inaccurate methodology for estimation of the Centrate returns to Duncrue WwTW. As the Regulator has already agreed that the Glen Water operation at BWwTW is unique and that it should not be charged in relation to Trade Effluent, even though this operation is covered by Trade Effluent Agreements. It is worthy to note that the Omega Contract pays on Sludge Processed and not Net Volumes [which would disregard any re-circulation]. This would further suggest that the calculation is not relevant.
- (vii) The potential impact of the Covid-19 Pandemic on trade businesses during the period.
- (viii) The Improved output from Kinnegar WWTW referenced in Line 15 commentary above
- (ix) A continuation of the recent significant reduction of sludge transfers from Belfast WWTW to the Omega Contractors dewatering facilities at Duncrue St.

Specific Commentary Requirements:

- Assumptions Made:
 - 60g/h/d as per NIAUR requirements
 - Skips weights (for Screenings and Grit) are recorded in wet tonnes. An assumption based on long term averages of (39%DS Screenings and 65%DS Grit) Dry Solids content has been used to convert wet tonnes into TDS. Apart from Kinnegar where the %DS is assessed for each skip weight.
- BOD loading is based on the measured influent sample result of loading applied to the WWTW processes; therefore there is no need to include a calculation for recirculated Sludge/Sludge liquors in Lines 1-7. It is not a calculated load from desktop analysis of Population, as required by the Regulator Guidance Notes. However, PPP Management team have been instructed to proceed on the basis of measured BOD and PE calculated from measured BOD (rather than desktop calculation) as it has been advised this is the Reporter and Regulators preferred method of establishing PE and BOD.

- Sludge production is based on the records of actual sludge imported to treatment or disposal centres. This is confirmed from the Contractors records of sludge from both weighbridge / Waste Management Notes records (for sludge cake) and sludge logger records (for liquid sludge).
- The PE figures have only been established on the basis of the BOD₅ loads recorded by the end of the year and represent the load received for the AIR22 Reporting Period. They have not therefore been notified to NIEA, as any such notifications relate to calendar years.

As the PPP contractors do not control septage, trade effluent nor manage connections of domestic population, they are unable to build up the loads on this basis. The loads are therefore determined in accordance with the Table 15 Line 2 Methodology, based on 52 treated effluent BOD₅ sample results per year [subject to Covid-19 Intervention]. This is contrary to the requirements of the Guidance Notes, and is not consistent with how NI Water only data is constructed; but PPP Management Team has been advised that this is the Reporter and the Regulator's preferred method of calculation. The PPP only data remains unchanged. The recirculated sludge/sludge liquors in Lines 1-7 are consistent with the methodology presented in AIR's 10-22.

Total Table

Line 14 - Percentage unsatisfactory sludge disposal

No change –

Line 15 - Total sewage sludge produced

The changes to the sludges produced are reflected in the commentary to Line 17 below. Refer to Line 15 above.

Line 17 - Total sewage sludge disposal

In AIR22 the PPP Contractors reported a disposal of 37.1 ttds [37.140] sludge disposed of. This year (AIR23) the reported figure is 36.7 [36.705] ttds.

In AIR22 the Company disposed of 0.8 ttds [0.801 ttds] relating to grit/screenings sludge. This year (AIR23) the reported figure is 0.8 ttds [0.798 ttds]. The AIR23 year was an average year for rainfall as 1135.5mm, fell based on the AREAL series. [1,100mm of rainfall] with 995.1mm recorded on the Areal series. Rainfall for the AIR22 period was 995.1mm.

In total, AIR22 reported 37.9 ttds [37.941 ttds] of sludge disposed of by all parties. In this reporting year (AIR23) the figure is 37.5 ttds [37.526 ttds].

The variance of 0.415 ttds [4.168 ttds AIR22] is considered to be a combination of:

- (i) A variation in total tonnage of sludge disposed of by the Omega contractor from NIW, Kinnegar and Omega WWTWs in combination.
- (ii) Variation in sludges derived for PPP Contractor grit and screenings, providing a further potential for variance.
- (iii) A variation in Sludge and Screenings handled by NI Water.
- (iv) Potential influence of Covid-19 Pandemic on overall trade discharges.
- (v) A substantial decrease in the volume of Sludge Cake presented at Duncrue St Sludge Facility -0.586 ttds and additional Liquid Sludge decrease from NI Water of -0.422 ttds. A decrease in Ballynacor Sludge Cake delivered at -0.158 ttds. Kinnegar WwTW increased Sludge Cake production by +0.277 ttds [assumption for 2023 as part of the estimated 0.8ttds retained within the process; as per Line 15 commentary].

NORTHERN IRELAND WATER LIMITED - ANNUAL INFORMATION RETURN

ANNUAL INFORMATION RETURN - TABLE 16 NON FINANCIAL MEASURES
SEWERAGE SERVICE ACTIVITIES (NIW only)

DESCRIPTION	UNITS	DP	1	2	3	4	5	6	7	8	9	10	11	12
			REPORTING YEAR 2015-16	REPORTING YEAR 2016-17	REPORTING YEAR 2017-18	REPORTING YEAR 2018-19	REPORTING YEAR 2019-20	REPORTING YEAR 2020-21	REPORTING YEAR 2021-22	REPORTING YEAR 2022-23	REPORTING YEAR 2023-24	REPORTING YEAR 2024-25	REPORTING YEAR 2025-26	REPORTING YEAR 2026-27
A ASSET BALANCE AT APRIL 1														
1 Total length of sewers	km	2	15,581.51 B3	15,625.13 B3	15,777.29 B3	15,890.63 B3	16,009.10 B3	16,163.23 B3	16,301.61 B3	16,362.76 B3				
2 Total length of "critical" sewers	km	2	3,760.85 C3	3,839.64 C3	3,860.69 C3	3,892.98 C3	3,930.23 C3	3,997.00 C3	4,044.91 C3	4,043.97 C3				
B CHANGES DURING REPORT YEAR														
3 New "critical" sewers	km	2	36.44 C3	1.49 C3	2.75 C3	2.79 C3	1.14 C3	1.19 C3	11.68 C3	6.77 C3				
4 "Critical" sewers - inspection by CCT/vman entry	km	2	71.62 C4	91.44 C4	151.69 C4	83.93 C4	65.60 C4	118.46 C4	117.00 C4	105.43 C4				
5 "Critical" sewers - renovated	km	2	1.26 B2	4.65 B2	2.49 B2	1.52 B2	2.55 B2	3.71 B2	2.24 B2	5.98 B2				
6 "Critical" sewers - replaced	km	2	5.32 B2	1.48 B2	2.75 B2	0.68 B2	2.38 B2	2.50 B2	2.11 B2	2.91 B2				
7 Abandoned "critical" sewers and other changes	km	2	0.00 B2	0.16 B2	0.00 B2	0.00 B2	1.40 B2	0.00 B2	0.11 B2	0.24 B2				
8 New "non-critical" sewers	km	2	110.60 C3	117.07 C3	117.78 C3	41.94 C3	63.16 C3	88.77 C3	98.64 C3	100.53 C3				
9 "Non-critical" sewers - renovated	km	2	2.71 B2	2.53 B2	3.88 B2	3.96 B2	3.64 B2	4.82 B2	6.96 B2	5.69 B2				
10 "Non-critical" sewers - replaced	km	2	7.80 B2	0.63 B2	5.98 B2	4.36 B2	9.95 B2	1.68 B2	19.04 B2	7.54 B2				
11 Abandoned "non-critical" sewers and other changes	km	2	0.11 B2	0.29 B2	0.18 B2	0.39 B2	0.21 B2	0.60 B2	0.06 B2	0.13 B2				
11a Total length of sewers replaced or renovated	km	2	17.09 B2	9.29 B2	15.11 B2	10.52 B2	18.52 B2	12.71 B2	30.35 B2	32.18 B2				
12 Sewer collapses per 1,000km	nr	1	79.5 B6	79.1 B3	75.8 B3	77.5 B3	77.3 B3	80.4 B3	74.9 B3	77.5 B3				
13 Sewer blockages per 1,000km	nr	1	1,023.4 B3	998.6 B3	905.8 B3	987.9 B3	1,088.5 B3	872.1 B3	748.3 B3	695.2 B3				
13a Number of sewer blockage clearance which exceeds 6 hours	nr	0	4,199 A2	4,285 A2	3,362 A1	4,155 A1	4,960 B3	3,900 A1	4,384 A1	4,646 A1				
13b Number of sewer blockage clearance which exceeds 12 hours	nr	0	3,273 A2	3,625 A2	2,586 A1	3,137 A1	3,634 B3	3,007 A1	3,510 A1	3,790 A1				
13c Number of sewer blockage clearance which exceeds 24 hours	nr	0	655 A2	708 A2	390 A1	512 A1	655 B3	498 A1	869 A1	896 A1				
C ASSET BALANCE AT MARCH 31														
14 Total length of sewers	km	2	15,625.13 B3	15,777.29 B3	15,890.63 B3	16,009.10 B3	16,163.23 B3	16,301.61 B3	16,362.76 B3	16,409.46 B3				
15 Total length of "critical" sewers	km	2	3,839.64 C3	3,860.69 C3	3,892.98 C3	3,930.23 C3	3,997.00 C3	4,044.91 C3	4,043.97 C3	4,079.34 C3				
D INTERMITTENT DISCHARGES														
16a Number of unsatisfactory intermittent discharges excluding CSOs (NIEA)	nr	0	151 C2	147 C2	143 C2	253 C2	134 C2	133 C2	323 B2	417 B2				
16b Number of unsatisfactory intermittent discharges CSOs (NIEA)	nr	0	270 C2	263 C2	255 C2	137 C2	253 C2	253 C2	282 B2	368 B2				
17a Number of intermittent discharges excluding CSOs	nr	0	1,780 B3	1,762 C2	1,766 C2	1,771 C2	1,776 C2	1,783 C2	1,784 C2	1,792 C2				
17b Number of CSOs	nr	0	800 B3	796 C2	798 C2	784 C2	784 C2	784 C2	784 C2	784 C2				
E DRAINAGE AREA PLANS														
18 Cumulative number of drainage area plans completed	nr	0	58 A1	58 A1	79 A1	82 B2	71 B2	82 B2	84 B2	90 B2				
19 Number of drainage area plan studies in progress at the report end of the report year	nr	0	8 A1	14 A1	23 A1	35 B2	48 B2	58 B2	72 B2	61 B2				
20 Total sewerage drainage areas	nr	0	250 A2	250 A2	250 A2	250 B2	257 B2	255 B2	255 B2	254 B2				
21 Cumulative % drainage area plan studies completed	%	1	23.2 A2	23.2 A2	31.6 A2	32.8 B2	27.6 B2	32.2 B2	32.8 B2	35.4 B2				
22 % population/properties covered by completed studies	%	1	90.4 B3	90.2 B3	87.1 B2	82.1 B2	85.2 B2	89.0 B2	89.8 B2	89.3 B2				
F SEWERAGE TREATMENT COMPLIANCE MEASURES														
23 % WwTW discharges compliant with numeric consents	%	1	92.6 A1	93.4 A1	93.4 A1	94.7 A1	94.7 A1	95.2 A1	93.6 A1	93.6 A1				
24 % of total p.e. served by WwTWs compliant with numeric consents	%	1	97.5 A1	93.9 A1	98.1 A1	99.3 A1	94.0 A1	99.2 A1	98.8 A1	98.9 A1				
24a % of total p.e. served by WwTWs compliant with numeric consents excluding upper tier failures	%	1	98.3 A1	98.7 A1	98.4 A1	99.3 A1	99.4 A1	99.4 A1	99.1 A1	99.0 A1				
25 Small WwTW compliance (works greater than or equal to 20 p.e. but less than 250)	%	2	80.72 A1	83.99 A1	87.21 A1	86.64 A1	89.29 A1	90.91 A1	92.01 A1	92.65 A1				
G NOMINATED SEWERAGE SERVICE OUTPUTS														
26 Delivery of improvements to nominated LIDs as part of a defined programme of work delivery or improvements to nominated WwTWs as part of a defined programme of work	nr	0	26 A2	11 A1	11 A1	8 A1	3 A1	1 A1	4 A1	3 A1				
27 Delivery of improvements to nominated WwTWs as part of a defined programme of work	nr	0	3 A2	2 A1	2 A1	6 A1	2 A1	3 A1	1 A1	6 A1				
28 Small WwTWs delivered as part of the rural wastewater investment programme	nr	0	4 A2	8 A2	3 A2	8 A2	9 A2	12 A2	2 A1	10 A1				
H PC15 ADDITIONAL SEWERAGE SERVICE OUTPUT MEASURES														
29 CSO and EO discharges at which event and duration monitoring equipment has been installed	nr	0	0 B2	0 B2	0 B2	115 B2	37 B2	127 B2	52 B2	83 B2				
30 WwTWs upgraded to comply with PPC Regulations	nr	0	0 A1	0 A1	1 A1	6 A1	7 A1	2 A1	0 A1	0 A1				
31 Intermittent pollution events received from the combined sewerage	m2	0	28,560 B2	54,864 B2	119,200 B2	34,103 B2	59,586 B2	0 B2	1,200 B2	91,898 B2				
32 Number of sustainable WwTW solutions delivered (p.e. > 250)	nr	0	1 A1	1 A2	1 A2	1 A2	9 A1	9 A1	0 A1	0 A1				
33 Number of sustainable WwTW solutions delivered (p.e. < 250)	nr	0	0 A1	1 A2	0 A2	0 A2	1 A1	1 A1	0 A1	0 A1				
I PC21 ADDITIONAL SEWERAGE SERVICE OUTPUT MEASURES														
34 Number of current Economic Constraint Areas removed by PC21 investment	nr	0							0 A1	0 A1				
35 Number of current Serious Development Restrictions removed by PC21 investment	nr	0							0 A1	6 A1				

Table 16 - Sewerage Service Activities (NI Water only WWTW)**Line 1 – Total length of sewers 1 April**

This value has been extracted from line 14 Table 16 of the previous AIR submission.

Line 2 – Total length of 'critical' sewers 1 April

This value has been extracted from line 15 Table 16 of the previous AIR submission.

Lines 3 to 11a – Changes during report year

The tables below show the make-up of the figures submitted for these lines.

Line	Description	CD	DS	CSD	Total(km)
3	New "critical" sewers	0.66	6.11	0	6.77
5	"Critical" sewers - renovated	5.55	n/a	0.43	5.98
6	"Critical" sewers - replaced	2.91	n/a	0	2.91
7	Abandoned "critical" sewers and other changes	0.24	n/a	0	0.24
8	New "non-critical" sewers	7.79	92.74	0	100.53
9	"Non-critical" sewers - renovated	4.13	n/a	1.56	5.69
10	"Non-critical" sewers - replaced	7.54	n/a	0	7.54
11	Abandoned "non-critical" sewers and other changes	0.13	n/a	0	0.13
11a	Total length of sewers replaced or renovated				22.12

Lines 3 and 8 – New 'critical' sewers/ new 'non-critical' sewers

Lines 3 and 8 include lengths of sewers within 'new development' which have been adopted by the Developer Services section of NI Water. The total length added to the network in AIR23 is 107.3km, compared to 110.32km in AIR22.



The critical sewer lengths have been calculated using the same methodology as AIR22. The confidence grade is unchanged at C3.

Line 4 - 'Critical' sewers – inspection by CCTV/man entry

Line	Description	CD	In-house	AP	Total(km)
4	'Critical sewers' - inspection by CCTV/man entry	20.8	53.87	30.76	105.43

Capital Delivery

Carried out 20.8km of CCTV work this year 22/23.

Asset Performance

Carried out 30.76km of CCTV work to address work for the Drainage Area Studies and Sewer Rehab Programme.

In-house crews

The length of CCTV executed by in-house CCTV crews is reported in AIR23 as 215.49km. In order to estimate the 'critical' sewer length this was multiplied by the overall percentage of critical sewer in the Corporate Asset Register – which is 25% = 53.87km. Giving a total of 105.43km.



The confidence grade for this line remains unchanged at C4.

Lines 5, 6, 9, 10 and 11a - sewers renovated and replaced

The total length renovated and replaced (22.12km) is a decrease on the AIR22 figure of 30.35km.

NI Water is still on target to meet our targets for sewer rehab.

Confidence grades remain unchanged at B2.

Lines 7 and 11 - sewers abandoned

These lines had a return of 0.37km which is an increase on the AIR22 figure of 0.19km. These figures were due to the abandonment of sewers only.

Lines 12-13c – Sewer collapses and blockages**General**

NIW agree the number of sewer blockages and sewer collapses from the draft invoices provided by the Contractor and approved by the relevant Field Managers. For the purposes of AIR 23 submissions and moving forward the Sewer Maintenance Contractor now provides an automated monthly blocked sewer report which details the total number of blockages cleared i.e. Main Sewer, Lateral Sewer, 'Private' Sewer & instances where the Contractor attended site and reported 'No Blockage Found'.

Within this reporting year (2022/23) the number of blockages has fallen in comparison with 2021/2022 reporting period. This is due to an increased emphasis on first time resolution and improved Public & Business education and practice i.e. greater monitoring of contractor repeat blockages and pressure on contractor to improve service and fault diagnosis.

The total number of rising main failures added to the total number of gravity sewer collapses provides the number of sewer repairs for table 46 line 44. During the reporting year the figures are as follows:

25	Rising Main Failures Repaired
1073	Gravity Main Sewers Repaired
<u>179</u>	Gravity Lateral Sewers Repaired
1277	Total number of sewer repairs

8462	Main Sewer Blockages
<u>2996</u>	Lateral Sewer Blockages
11458	Total Number of sewer blockages

Of the 11458 sewer blockages, for 22/23 reporting year there were 29 incidents of actual internal flooding.

Note: There were no other sewer repairs other than those documented above.

All FOC's attributed to 15 Blockages 14 Collapses 0 Equipment Failure

NIW are now more proactive in their approach to repeat blockages, as part of the annual performance objectives all the Field Managers (FM) have been tasked to make a 1% reduction in the number of blocked sewers. This reduction is being targeted by NIW Customer Field Managers (CFM) using the resource of designated field technicians to carry out CCTV investigations on sewers that have repeat blockage complaints, any faults found are remedied, thus reducing the number of repeat incidents. NIW have now generated a new standard job that enables the contractor, when he is attending a blocked sewer, to carry out a CCTV to locate and mark any suspected defects in the pipe, these can then be repaired and this prevents further repeat blockages and a reduction in the total number of blockages annually. Under the new contract repeat blockages are recorded on the draft invoices, from the contractor, as they are not paid unless the original blockage was more than 28 days prior to the reoccurrence. These repeat blockages < 28 days are discounted from the blockage numbers.

For AIR 23 submissions & moving forward the Sewer Maintenance Contractor provides an automated monthly blockage report to NIW. This blockage report details the job created date & time and the date and time the job is completed by the Contractor on site.

- The number of rising main failures and the number of gravity sewer collapses are summated to give the total number of sewer collapses.
- The total number of sewer collapses is divided by the total length of sewers at 31 March 2023 to give the number of sewer collapses per kilometre.
- The number of sewer collapses per kilometre is multiplied by 1000 to give the number of sewer collapses per 1,000km.

Table 16 line 12 has been calculated using the figure reported for table 46 Lines 32 and 33 and the total length of sewers figure reported for Table 16 line 14.

The automated monthly blocked sewer report received from the Sewer Maintenance Contractor also includes numbers of 'Private' blockages cleared as a goodwill gesture and also the numbers of instances where the Contractor attended site and reported 'No blockage found'.

Line 13 - Sewer Blockages per 1,000 Km

- The number of sewer blockages is divided by the total length of sewers at 31 March 2023 to give the number of sewer blockages per kilometre.
- The number of sewer blockages per kilometre is multiplied by 1000 to give the number of sewer blockages per 1,000km.

Table 16: line 13 has been calculated using the figure reported for table 46 Line 36 and the total length of sewers figure reported for Table 16 line 14

Lines 13a, 13b and 13c - Number of blockage clearance which exceeds 6, 12 & 24 hours

The Sewer Maintenance Contractor provides an automated monthly blockage report to NIW. The blockage report details the job created date & time, the date and time the job is completed by the Contractor on site and calculates the length of time the blockage takes to complete. The Sewer Maintenance Contractor report also details the number of 'private' sewer blockages cleared as a good will gesture and these are subsequently excluded from the totals. These figures are then populated into Table 16 Lines 13a, 13b & 13c as per Utility Regulator definition.

Confidence Grading – Lines 12, 13, 13a, 13b & 13c

Because NIW are using data from checked and paid invoices (B3) and total length of sewers (B3), the confidence grade for the AIR23 L12 & L13 is B3. NIW expects this to consolidate as we move forward into AIR24 as report building continues with the single Sewer Maintenance Contractor.

The Confidence Grade for Table 16 Lines 13a, 13b & 13c is A1 on the basis of the automated monthly blocked sewer report received from the Sewer Maintenance Contractor.

Line 14 – Total length of sewers

There has been no change to the structure of the data reported on this year from the previous years that would directly affect the totals provided. The same queries have been used to extract the data from the Corporate Asset Register and have been checked to ensure that they are still relevant. The confidence grade of the data will remain the same as the previous year. Any new data will have adhered to the NIW Code of Practice for the submission of asset data ensuring that data quality levels have been maintained throughout the year.

This figure has not been calculated from Lines 1 to 11; it has been extracted using the process outlined in the methodology using data extracted from the Corporate Asset Register.

Line 15 – Total length of 'critical' sewers

The same estimation techniques have been used as in previous years and are still dependent on 3rd party datasets. The analysis performed assesses the criticality of the sewers based on size, material and depth attributes of the sewer and its location in regard to structures, roads, railways and watercourses. This is a desktop exercise based on the location and attributes of each sewer as per the definition of critical sewers in the WRc Sewerage Rehabilitation Manual. Due to the reliance on 3rd party datasets for this analysis, sewer criticality grading for individual sewers may change from previous submissions and therefore the change in total length of critical sewers may not fully align with the new critical sewers figure in T16 L3. As the result of the analysis is an estimation the confidence grade of C3 will remain in place.

This figure has not been calculated from Lines 2 to 7; it has been extracted using the process outlined in the methodology using data extracted from the Corporate Asset Register.

Lines 16a & 16b - Number of unsatisfactory intermittent discharges

This line refers to Unsatisfactory Intermittent Discharges (UIDs) confirmed by NIEA Statement of Need within the terms of the Guidelines to the UWWT Directive.

	Asset Type	No. UIDs AIR23	Total No. of NIW (discharging) Assets
16a	Number of WwPS & WwTW CSOs	417	1806
16b	Number of Network CSOs	368	706
	Total	785	2512

Commentary for AIR23 Figures

- Figures include WwTW Boundary CSOs and Pumping Stations
- AIR23 figures accurate as of 30/03/2023 as appearing on NIW Discharge Register. Statements of Need received after March 2023 shall be included within AIR24 figures.
- Breakdown of UID status as a percentage of total number of NIW discharging assets:
 - 31% Unsatisfactory (confirmed by NIEA Statement of Need)
 - 13% Satisfactory
 - 56% Unknown

Resolved UIDs

- 3No. UIDs resolved by Northern Ireland Water between AIR22 and AIR23 (3No. EROs)

NIW Project Code	Drainage Area	Asset CARID	Asset Name	Beneficial Use Date
KS874	North Down	SP002022259	Stricklands Glen (1)	March 2023
KL533	Donnybrewer	SP002021889	Eglinton Cottage Way WwPS	June 2022
KF378	Tamnamore	SP002021686	Clonmore Rd Clonty clay WwPS	February 2023

Lines 17a and 17b – Sewerage System Intermittent Discharges

General Commentary from the Asset Performance Team (APT) – Sewerage System Intermittent Discharges Lines [17a and 17b]

Table A - Depicting differences between the sewerage system overflows between AIR22 and AIR23

Intermittent Discharges	APT Preliminary AIR22 Number	Final AIR22 Number (after removal of Dual, Duplicates and Bifurcation Assets)	APT Preliminary AIR23 Number	Difference between AIR22 & AIR23 Preliminary Number	Total Number of Dual, Duplicates and Bifurcation assets to be removed	Final AIR23 Number (after removal of Dual, Duplicates and Bifurcation Assets)
Combined Storm Overflows (CSOs)	826	784	826	0	-42	784
Wastewater Pumping Stations (WwPSs)	1104	1102	1104	0	-2	1102
Total Number of	1930	1886	1930	0	-44	1886

Intermittent Discharges						
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Hence for AIR23 the total number of Sewerage System Overflows is 784 plus 1102 i.e. 1886.

From the APT data used there has been no change in CSOs since AIR22 (i.e. 826). here has been a no increase in WWPS overflows since AIR22 (1104).

Preliminary no difference CSOs overflows since AIR22.

There have been no changes since AIR22 (1930).

(For a further breakdown see Table B, C & D – Changes in Intermittent Discharges by Drainage Area below).

The total number of consented assets held by NI Water is 1930. However a number of these assets (n=44) are not included in the finalised number. This is because these are duplicates, dual manholes or bifurcation manholes which do not fall within the industry standard for reporting purposes.

The 44 sewerage system overflows have been categorised into the following:

- 29 Dual Manholes;
- 4 Bifurcation Manholes;
- 11 Duplicate Assets.

(For further details see Tables E, F & G below)

Overall this equates to no change in AIR23:

Plus:	<u>1930 Preliminary overflows identified in AIR23</u>
Sub Total:	1930 sewerage system overflows
Minus:	<u>44 Overflows not included in the finalised number for AIR23</u>
Total:	1886 sewerage system overflows identified for AIR23

An exercise has been ongoing over the AIR reporting years to confirm the number of sewage system overflows within NI Water. An agreement is in place with Northern Ireland Environment Agency (NIEA) that updates will only be submitted on a catchment by catchment basis once all information is confirmed.

Before this information can be adopted by NI Water, it has to be signed off by NI Water Network Sewage Business Unit and any changes included on NI Water's Geographical Information Service (GIS). This process is ongoing.

Table B – APT Preliminary changes in intermittent discharges by drainage area for AIR23

Drainage Area	No of CSOs added since AIR22	No of CSOs removed since AIR22	No of WWPS added since AIR22	No of WWPS removed since AIR22	Comments
Ballymoney DA	0	0	0	0	
Total Number of intermittent discharges added or removed since AIR21	0	0	0	0	
Net decrease in CSOs since AIR21	0				
Net Increase in WWPSs since AIR22			0		

Table C – AIC Preliminary changes in Intermittent discharges by drainage area for AIR23

Drainage Area	No of CSOs added since AIR23	No of CSOs removed since AIR23	No of WWPS added since AIR23	No of WWPS removed since AIR23	Comments
N/A	0	0	0	0	No Updates from AIC for AIR23
AIC Net Increase in CSOs since AIR22	0				
AIC Net Increase in WWPSs since AIR22			0		

Table D – Combined Totals of APT & AIC Preliminary changes in Intermittent discharges by drainage area for AIR23

	No of CSOs added since AIR23	No of CSOs removed since AIR23	No of WWPS added since AIR23	No of WWPS removed since AIR23
Preliminary APT number of intermittent discharges added or withdrawn since AIR22	0	0	0	0
Preliminary AIC number of intermittent discharges added or withdrawn since AIR22	0	0	0	0
Subtotals	0	0	0	0
Preliminary net increase or decrease in WWPS & CSOs since AIR22	0		0	
Preliminary total increase in sewage system overflows for AIR23	0			

Table E - Dual Manholes not included in the finalised number for AIR23

Name of Sewer System	Car Id	Easy reference of asset from Consent of Discharge Map	Dual Manholes (To be Withdrawn)	Total No: of Dual Manholes per drainage area
Antrim	CO002586738		Y	1
Whitehouse	NM001345599		Y	16
Whitehouse	NM001348440		Y	
Whitehouse	NM001345603		Y	
Whitehouse	NM001349241		Y	
Whitehouse	NM001347238		Y	
Whitehouse	NM001346012		Y	
Whitehouse	NM001339619		Y	
Whitehouse	NM001340886		Y	
Whitehouse	NM001350136		Y	
Whitehouse	NM001340887		Y	
Whitehouse	NM001349313		Y	
Whitehouse	NM001339615		Y	
Whitehouse	NM001340884		Y	
Whitehouse	NM001349320		Y	
Whitehouse	NM001349319		Y	
Whitehouse	NM001349658		Y	
Ballynacor	NM001229100		Y	12
Ballynacor	NM001230688		Y	
Ballynacor	NM001231583		Y	
Ballynacor	NM001231355		Y	
Ballynacor	NM001229426		Y	
Ballynacor	NM001232930		Y	
Ballynacor	NM001278776		Y	
Ballynacor	NM001278775		Y	
Ballynacor	NM001234366		Y	
Ballynacor	NM001280565		Y	
Ballynacor	NM001282390		Y	
Ballynacor	NM001231354		Y	
Total Number of Dual Manholes not included in the finalised number for AIR23				29

Table F - Bifurcation Manholes not included in the finalised number for AIR23

Name of Sewer System	Car Id	Easy reference of asset from Consent of Discharge Map	Bifurcation Manhole (To be Withdrawn)	Total No: of Bifurcation Manholes per drainage area
Carrickfergus	NM001353097	Ellis Street A	Y	1
Rathfriland	NM001291669	John Street	Y	1
Waringstown	NM001238461	CS 06	Y	1
Enniskillen	CO003124504		Y	1
Total No: of Bifurcation Manholes not included in the finalised number for AIR23				4

Table G - Duplicate Assets not included in the finalised number for AIR23

Name of Sewer System	Car Id	Easy reference of asset from Consent of Discharge Map	Duplicate Assets (To be Withdrawn)	Total No: of Duplicate Assets per drainage area
Ballymena	SP002022687	Tullygarley Transfer WWPS FA Overflow	Y	1
Whitehouse	CO002966311	John Street	Y	6
Whitehouse	CO002987846		Y	
Whitehouse	CO002914133		Y	
Whitehouse	CO002988722		Y	
Whitehouse	CO002987839		Y	
Whitehouse	CO000984647		Y	
Omagh	SP002021852	Omagh Transfer WWPS	Y	2
Omagh	SP002021852	Omagh Transfer WWPS	Y	
Ballynacor	CO000984402	Thomas Street	Y	2
Ballynacor	SP002022218	Annsborough	Y	
Total Number of Duplicate not included in the finalised number for AIR23				11

Lines 17a and 17b – Above Ground Overflows from within WTTWs

Table H - Total number of Overflows within WWTW

	AIR22 Number	AIR23 Number
Total number of Overflows from within WWTW	682	690

Hence for AIR23 the total number of overflows within WWTW is 690.

The overall number of WWTW overflows from AIR22 to AIR23 has had a net increase of 8 overflow. With regards to the number of additional and withdrawn overflows and further changes to the designation of the type of overflow listed, see Tables H to P below. The increase in WWTW overflows in AIR23 is mainly due to capital investment which has resulted in several small works now having an overflow facility.

The physical changes on the ground with respect to the number of overflows within WWTW since AIR21 are as follows:

- 4 withdrawn due to the works being upgraded since AIR22.
(See Table I, J, K & L below)
- 12 Additional overflows within WWTW since AIR22.
(See Table M, N & O below)

Hence a net increase of 8 overflow since AIR22.

Table I - Overflows within WWTW withdrawn since AIR22 due to works becoming a pump away in AIR23

Name of Works	Site ID	Status in AIR23	Withdrawn O/Fs Since AIR22
		N/A	

Table J - Overflows within WWTW withdrawn since AIR22 due to works being upgraded

Name of Works	Site ID	Status in AIR22	Changes to Overflows for AIR23	Withdrawn O/Fs Since AIR22
Ballygowan WwTW	S00247	Works upgraded	FFT overflow withdrawn	1
Carrowdore WwTW	S00236	Works upgraded	FA and FFT overflows withdrawn	2
Loughries WwTW	S00230	Works upgraded	FFT with Storm Retention overflow withdrawn	1
Total number of Overflows within WWTW withdrawn since AIR22 due to works being upgraded				4

Table K – Withdrawn Overflows within WWTWs due to incorrect designation in AIR21

NAME of Works	Site ID	Status in AIR23	Changes to Overflows for AIR23	Withdrawn O/Fs Since AIR22
		N/A		
Total number of withdrawn Overflows within WWTWs due to incorrect designation in AIR23				0

Table L– Summary of the total number of Overflows withdrawn since AIR22

Total of overflows withdrawn since AIR21 due to the works becoming a pump away	0
Total of overflows withdrawn since AIR22 due to the works being upgraded	4
Total of Withdrawn Overflows due to incorrect designation in AIR21	0
Combined Total Number of Overflows within WWTW withdrawn since AIR21	4

Table M - Additional overflows within WWTW since AIR22 due to WWTW upgrades

NAME of Works	Site ID	Status in AIR22	Changes to Overflows for AIR22	Additional O/Fs Since AIR21
Ballycairn (Down) WwTW	S00336	Works upgraded	1no. new FFT O/F	1
Ballygarvigan WwTW	S00228	Works upgraded	1no. new FFT O/F	1
Ballygowan WwTW	S00247	Works upgraded	1no. new FA O/F	1
Ballylumford Cottages WwTW	S00260	Works upgraded	1no. new FFT O/F	1
Gortereghy WwTW	S01110	Works upgraded	1no. new FFT O/F	1
Hillcrest (Antrim) WwTW	S01111	Works upgraded	1no. new FFT O/F	1
Magherahoney WwTW	S01117	Works upgraded	1no. new FFT O/F	1
Racavan WwTW	S01451	Works upgraded	1no. new FFT O/F	1
Ballymacawley WwTW	S02560	Works upgraded	1no. new FFT O/F	1
Maglion Terrace WwTW	S02147	Works upgraded	1no. new FFT O/F	1
Drumneechy WwTW	S03097	Works upgraded	1no. new FA O/F	1
Ards North WwTW	S06177	Replacement Works	1no. new FA O/F	1
Total number of additional Overflows since AIR22 due to WWTW upgrades				12

Table N - Additional overflows within WWTW due to incorrect designation in AIR21

NAME of Works	CAR ID	Status in AIR22	Changes in Overflows for AIR23 from Process Info	Additional O/Fs Since AIR22
		N/A		
Total number of additional Overflows within WWTW due to incorrect designation in AIR22				0

Table O – Summary of additional overflows within WWTW since AIR22

Total Number of additional overflows since AIR22 due to works being upgraded	12
Totals Number of additional overflows within WWTWs due to incorrect designation in AIR22	0
Combined Total of Additional overflows within WWTWs since AIR22	12

Table P – Summary of Overflow type within WWTW

Overflow Type	AIR22 Overflows from WWTW	AIR22 Overflows - Totals	AIR23 Overflows from WWTW	AIR23 Overflows - Totals	Difference between AIR22 & AIR23
Formula "A" O/Fs only	173	202	175	204	2
Formula "A" O/Fs (which also act as PS E/O)	20		20		
Formula "A" O/Fs with Storm (which also act as PS E/O)	9		9		
FFT O/Fs only	134	373	141	379	6
FFT O/Fs (which also act as PS E/O)	17		17		
FFT O/Fs with Storm Retention	213		212		
FFT O/Fs with Storm Retention (which also act as PS E/O)	9		9		
3 DWF	0	0	0	0	0
Additional Overflows-storm	5	107	5	107	0
Additional Overflows-other structures	5		5		
Additional Overflows-pumping station E/O	97		97		
Total No of WWTWs Overflows	682	682	690	690	8

For AIR23, 0 overflows have been withdrawn due to works becoming a pump away (see Table I), and 4 overflows have been withdrawn due to works being upgraded (see Table J), and 0 overflows withdrawn due to incorrect designation (see Table K), therefore there were 4 overflows withdrawn in total.

Also, there are 12 additional overflows due to works being upgraded (see Table M), and 0 additional overflow (see Table N) due to incorrect designation. Therefore, there were 12 additional overflows in total.

This equates to a net increase of 8 additional overflows since AIR22.

Since AIR22 the Strategic Asset Performance Team has continued to review their WwTW overflow summary information from Water Order Consent (WOC) applications.

This provides further refinement and greater confidence in the designation of overflow type. Therefore for the purpose of these lines Strategic Asset Performance has not endeavoured to use A/C data due to the on-going A/C process of subscribing WOC information across onto GIS.

For AIR24, an exercise will take place to update the current AIR23 Overflow spreadsheet and ensure that it reflects the New Discharge Register.



230502 - AIR23
WWTW Overflows.x

Line 18 – Cumulative number of drainage area plans completed

A Drainage Area Plan (DAP) is undertaken in four stages:

- Stage 1 – Catchment Planning
- Stage 2 – Model Build and Verification
- Stage 3 – Risk Identification
- Stage 4 – Interventions

For the purposes of Line 18, a DAP is considered to have been “completed” at the end of Stage 4 – Interventions.

As such, there has been a total of **90** DAPs completed since 2003. This comprises:

- 78 drainage areas where an initial new DAP was completed (including 6 in the last reporting year from 1st April 2022 to 31st March 2023 since the AIR22 submission), and
- 12 drainage areas where the previous original DAP studies were repeated (i.e. a subset of the 78 initial new DAPs).

A breakdown of how many initial new DAPs were completed during various PC periods is provided below:

- Pre-PC10 (since 2003) = **9**
- PC10 = **10**
- PC13 = **10**
- PC15 = **43** (+12*)
- PC21 (year 1) = **6**

(*There were **12** DAPs completed during PC15 that were repeats of a previous study, as described above).

Since the AIR22 submission, between 1st April 2022 and 31st March 2023 there have been 6 DAPs completed, these being:

Ballymena DA
Ballynahinch DA
Ballywalter DA
Bellaghy DA
Bushmills DA
Portaferry DA

It is observed that, although a DAP is not considered to be fully “complete” until the end of Stage 4 (Interventions), the DAP process delivers a verified hydraulic model (and associated outputs) by the end of Stage 2 (Model Build and Verification). These data-rich deliverables

are used extensively throughout NI Water to inform key decision-making. Therefore, a DAP does not need to be formally considered as “complete” before providing substantial benefits to NI Water and other stakeholders.

It is considered that the Line 18 figure of 90 includes recounts of 12 repeated DAPs. If these were discounted it would result in an amended value of 78, which would describe the actual number of catchments with a completed DAP study, and as a result could provide a more realistic figure to take forward to the Line 21 determination (see Line 21 comments below). Currently, the unamended Line 18 figure of 90 could artificially skew the Line 21 figure.

Line 19 – Number of drainage area plan studies in progress at the report end of the report year

There are **61** drainage area plans currently being progressed and scheduled for completion during PC21.

There were 6 DAPs completed since AIR22 as noted in the Line 18 comments.

There were 2 DAPs initiated since AIR22, these being Annalong DA and Ballykinler DA.

There were 4 DAP studies that had completed Stage 2 but were subsequently descoped / cancelled since AIR22, these being Cloughey DA, Greysteel DA, Killough DA and Strangford DA.

There were 3 DAP studies that were rescoped as Rurals Model Builds (which do not progress beyond Stage 2) since AIR22, these being Aghagallon DA, Aghalee DA and Lisbellaw DA.

There are also an additional **36** DAPs which are planned to be undertaken and completed during PC21.

Therefore, it is planned that a total of **103** DAPs will be completed by the end of PC21. This would be the most DAPs delivered by NIW during a PC period, and is nearly double the previous maximum delivered (55 DAPs during PC15).

Line 20 – Total sewerage drainage areas

It is noted that the Line 20 Methodology defines any catchment above 250 PE as a “Drainage Area”; however, this definition does not align with current industry guidance about minimum catchment sizes for undertaking a formal DAP. Typically, a DAP would only be progressed for a drainage area with a PE of 2000 or more.

There are only 84 catchments with a PE of 2000 or more.

If the PE threshold of 2000 was used instead of the current 250, it would provide a more realistic the figure to take forward to the Line 21 determination (see Line 21 comments below).

Line 21 – Cumulative % drainage area plan studies completed

Line 21 is calculated automatically from figures in Line 18 and Line 20.

Previous comments have noted issues with how these figures have been calculated, and have described how more realistic figures in Line 18 and Line 20 could be taken forward into the Line 20 calculation.

Considering these comments, it could be more reliable indicator of DAP coverage to use a Line 18 figure of 77 (DAPS Completed), and a Line 20 figure of 84 (Total Drainage Areas). This would result in a Line 21 value of 91.7% instead of the current figure of 35.4%.

Line 22 - % population/properties covered by completed studies

Currently, the number of completed DAPs accounts for 73.3% of the entire sewer network.

By the end of PC21, the number of completed DAPs will account for **95.3%** of the entire sewerage network.

Line 20 comments have noted that, as per industry guidance, a DAP will only be undertaken for catchments with a PE of 2000 or above. Therefore, current limitations in modelling practice will prevent achieving 100% DAP coverage of the entire sewer network, as the network includes drainage areas beneath the 2000 PE threshold.

To address this limitation there is a programme of Rural Model Builds being undertaken, which aims to provide basic model coverage for smaller-scale catchments of approximately 1000 – 2000 PE (i.e. under the PE threshold for a full DAP study).

There have been 112 Rural Models completed to date, with a further 53 more planned within PC21.

Lines 23 – 25 Sewage treatment compliance measures

Introduction

The Northern Ireland Environment Agency (NIEA) issues Water Order Consents (WOC) which set out legally binding conditions under which discharges to the aquatic environment are permitted. NI Water has in the order of 1500 WOC's covering all Waste Water Treatment Works (WWTW), Water Treatment Works and sewerage systems.

NIEA assesses compliance on a calendar year basis, against WOC and UWWTR standards to give the "official" compliance figure. However, to inform Management of progress on achieving Key Performance Indicators (KPI's) and address any potential problems, monthly reports are produced. In 2022 the KPI's related to wastewater treatment performance were:

- The percentage of WWTW serving more than 250 Population Equivalent (PE) compliant with the WOC and Urban Wastewater Treatment Regulations (UWWTR).
- The percentage PE served by compliant WWTW

Changes carried forward for AIR 23

1. For AIR 23 data the base for the WWTW in service aligns with the compliance figures of the KPI outturn and NIEA compliance assessment, which reports on all works in service at the start of the calendar year.
2. The PE data used to populate this table are the PE's derived by the Capital Maintenance Planning Team (Wastewater) for the AIR 21 Return. These same PE's were also used to calculate the number of audit samples required per site for the 2022 reporting year and agreed with (NIEA).
3. Only WWTW serving greater than 250PE with numeric standards are included. No qualifying works were excluded from the assessment, with all regulatory samples having been sampled and analysed for the regulatory parameters.
4. The list of WWTW for AIR 23 contains a number of works which have crossed sampling thresholds. Table 1, which indicates the sampling frequencies associated with WWTW PE's, is provided below.

Table 1 – Sampling Frequency Table

PE	Sampling Frequency
<250 PE	0
250 – 4,999 PE	12
5,000 – 49,999 PE	24
>50,000 PE	48

If the PE of a WWTW causes a difference in sampling frequency, NIEA require evidence to justify the change. Evidence is required in the form of results of a flow and load survey or daily inlet sample results for a period of preferably one year but no less than six months. Table 2 indicates the WWTW affected by sampling frequency threshold changes and is provided overleaf.

Table 2 – Sampling Frequency Threshold Changes

Works Name	PE	PE Supplied by Asset Management	Threshold Being Crossed
Dromore (Tyrone)	2032 (2014)	1839	2,000
Donaghmore	2058 (2020)	1780	2,000
Garvagh	2023 (2020)	1990	2,000
Garvaghy	260 (2020)	225	250
Tandragee	11279 (2020)	9677	10,000

The figures in brackets refer to the year that the sample scheduling PE data, agreed with NIEA, was applied to each of the works in Table 2, in the absence of flow and load data.

5. Only NI Water operated WWTW are included in assessment.

How the compliance is measured

Line 23 – Percentage of WWTW discharges compliant with numeric consents

The WOC specifies the number of samples to be taken per year and the parameters which have to be determined. A WWTW may fail if the required numbers of samples are not taken or the full range of parameter's are not determined.

Compliance for each WWTW was assessed on a parameter basis over a calendar year using the Look-Up Tables (LUT) of the Urban Waste Water Treatment Regulations (NI) 1995. This statistically derived methodology permits a certain number of exceedances, based on the number of samples taken, for each parameter included in the WOC e.g. where 24 samples are taken, three exceedances of each parameter are permitted. When this number of exceedances is surpassed a WWTW is deemed to fail. Table 3 in Appendix 1 details the relevant section of the Look-Up Table.

A number of WWTW have an additional clause in the consent known as an Upper Tier Limit (UTL) on the sanitary parameters of Biological Oxygen Demand (BOD, Suspended Solids (SS) and Ammonia (NH₄). One exceedance of this standard will lead to the WWTW failing for the year.

The WOC standards are contained in the Laboratory Information Management System (LIMS) and the audit sample results are automatically assessed against the standard. LIMS generates a standard report listing all WWTW with numeric standards and indicating the number of exceedances and whether the works has passed or failed.

A small number of WWTW have nutrient standards, nitrogen and/or phosphorus, although these are assessed on an annual average. While LIMS calculates a running average, which is displayed in the report referred to previously, it does not have the facility to compare this against a standard. This requires that the average is compared manually on an ongoing basis with the WOC standard.

Exceedances can be discounted from compliance assessment should NI Water be able to demonstrate to NIEA that, at the time of the exceedance, a works was not under normal operating conditions. The definitions of abnormal operating conditions are given in Appendix 2 but NIEA may permit discounts under other conditions e.g. skewing of performance through too many samples being lifted in a short period caused by the rescheduling of samples. Should a sample be discounted, it must be replaced by another sample taken on the same day of the week. A replacement sample when entered on LIMS will register automatically on the compliance report.

NIEA can also issue interim time banded standards during capital upgrades of a WWTW. This is a more relaxed standard applicable for a specified period over which construction work may disrupt the normal treatment processes. When this time banded standard is entered in LIMS it is taken account in the production of the compliance report.

At monthly intervals (for the KPI and Board Reports) and at the end of the calendar year, the number of WWTW which have passed their numeric WOC was calculated as a percentage of the total number of works to determine the compliance with the target.

Line 23 Calculations – Taken from AIR 23 Calculation Spreadsheet

No. of NI Water Only WWTW's = 234

No. of failing NI Water Only works = 15

No. of passing NI Water Only works = 219

$219/234 \times 100 = 93.59\%$

Reported to one decimal place = **93.6%**

Line 24 – Percentage of Total PE Served by WWTW's Compliant with Numeric Consents

The PE served by compliant WWTW was calculated as a percentage of the PE served by the total number of WWTW. As referred to above it should be noted that Upper Tier Limits (UTL) were applied in determining this compliance. The figure reported is based on the total population.

Line 24 Calculations – Taken from AIR 23 Calculation Spreadsheet

PE of failing NI Water Only works = 21384

Total PE of NI Water Only works = 2002319

PE of passing NI Water Only works = 1980935

$1980935/2002319 \times 100 = 98.93$

Reported to one decimal place = **98.9%**

Line 24a – Percentage of total PE served by WwTWs compliant with numeric consents excluding upper tier failures

The PE served by compliant WWTW was calculated as a percentage of the PE served by the total number of WWTW. As referred to above it should be noted that Upper Tier Limits (UTL) were not applied in determining this compliance. The figure reported is based on the total population.

Line 24a Calculations – Taken from AIR 23 Calculation Spreadsheet

PE of failing NI Water Only works (Exc. UT) = 19326

Total PE of NI Water Only works = 2002319

PE of passing NI Water Only works = 1982993

$1982993/2002319 \times 100 = 99.03$

Reported to one decimal place = **99.0%**

The data reported in this table was new for AIR16. As more information is developed in future AIR reporting cycles, further commentary can be developed on emerging trends for these measures.

The application of confidence grade A1 to lines 24 and 24a is considered appropriate as these lines are reporting a percentage of total consented PE values, the values of which are agreed with NIEA. The change from C5 to A1 was made in response to the Reporter's recommendation in AIR15 commentary that a much higher confidence grade should be applied to these lines.

Line 25 - Small WwTW compliance (works greater than or equal to 20 p.e. but less than 250 p.e.)

A new compliance measure was introduced for PC15 for small works in the band 20 – 249 population equivalent (p.e.). This measure is directly linked to delivery of small works under the Rural Wastewater Improvement Project (RWIP) project. All sites to be upgraded under RWIP are agreed with NIEA. The starting position for compliance projections throughout PC15 was based on NIEA's assessment of works as passing or failing in calendar year 2013. Compliance was projected to improve year on year through delivery of works agreed with NIEA for upgrade via the RWIP project.

Lines 26-28 - Nominated Sewerage Services Outputs

Refer to Table 40a for detailed commentary on these lines.

Line 29 - CSO Monitoring

NI Water has installed 83 monitors in 22/23.



AIR 23 EDM
returns.xlsx

The confidence grade is unchanged at B2

Line 30 – WWTW's upgraded to comply with PPC Regulations

A new compliance measure was introduced for AIR16 for Wastewater Treatment Works upgraded to comply with PPC Regulations. There are currently 29 qualifying works reported for this measure. In agreement with NIEA the PPC permit for Sion Mills WwTW was surrendered in May 2017 as the site was treating significantly less sludge than the PPC permitted daily limit of 49.3 m³/d and a PLC inhibitor was installed.

During 2023/24, NI Water will continue to work with NIEA to identify potential additional sites for PPC permit surrender, which are in a similar position to Sion Mills.

Improvement works have been carried out at a number of sites under the PC21 Year 2 Base Maintenance Programme. These improvement works include PPC compliance measures such as odour abatement unit media replacement, sludge thickener replacements, refurbishment of sludge import screens, replacement of odour control unit blowers, replacement of sludge holding tanks and replacement of poly dosing plants.

Odour modelling is required to demonstrate what impact, if any, each installation is having on the surrounding environment. Given the cost associated with odour modelling, NIEA set out their priorities for completion of odour modelling. This required 23 odour modelling assessments to be undertaken, with 5 sites being assessed by NIEA as not requiring odour modelling.

An Odour Modelling plan was prioritised and agreed with NIEA.

To date, odour modelling has demonstrated that 8 sites do not require capital investment to achieve compliance. A further 15 sites became compliant between 2017 and 2021 following improvement works:

2017/18: Whitehouse

2018/19: Ballyclare, New Holland (Lisburn), Carrickfergus, Culmore and Cookstown

2019/20: Antrim, Larne, Dunmurry, Enniskillen, Omagh and Newcastle

2020/21: Magherafelt, Strabane and Ballymena

Upon completion of the odour modelling, NI Water and NIEA will be in a position to assess each of the remaining sites and determine if the PPC Regulations are satisfied, or if additional investment is required to comply. If so, a work programme will be developed, in conjunction with NIEA, to deliver the necessary improvements to meet PPC Compliance for each site. Until such times, the remaining 5 sites are assessed as non-compliant at this stage.

For the sites not requiring odour modelling NI Water has progressed all site documentation, such as site specific management plans, accident management plans and odour management plans which have been signed-off by NIEA.

In 2018/2019, NI Water completed a survey of chemical storage and site drainage at a number of sites, including PPC permitted sites. The findings from this survey identified additional work at PPC sites to maintain compliance. The main concern identified from the survey relates to a pathway issue for the chemical storage and delivery areas. For example, at Downpatrick WwTW there is a chemical interceptor in place and a 3 way valve which should prevent any discharge of chemical to surface water, however there is a small risk which has been identified. Pipework from the spill tank requires diversion from the 3 way valve to the process pipework. The work has been identified as part of the PC21 plan and has been programmed to address the issue.

NI Water Odour Modelling Implementation Plan:

WWTW	NSA Priority	Report due	Phase 1 Target Completion Dtr	Phase 2 Actual Completion Dtr	Phase 3 Odour Study (if required) Target date	Phase 3 Target Completion Dtr	Phase 2 Actual Completion Dtr	Finalised Year Completion Date	NSW Status
Adonis	2	Yes	Jun-17	May-17	Not required	Not required	Not required	2017/18	Completed
Ballyclare WWTW	3	No	Apr-18	May-18	Sep-18	Nov-18	Dec-18	2022/23	Completed
Ballymore (Tullygarry)	2	Yes	Jun-18	Jun-18	Summer 18	Jul-18	Dec-18	2018/19	Completed
Barrkillybegs	3	No	On hold pending derogation study					2019/20	Stalled
Carrickfergus	1	No	Nov-16	Nov-16	Aug/September 16	Nov-16	Nov-16	2016/17	Completed
Cookstown	2	Yes	Jun-17	Jun-17	Oct-17	Jan-17	Jun-18	2017/18	Completed
Culmore	2	Yes	Jun-17	May-17	Oct-17	Dec-17	Jan-18	2017/18	Completed
Downpatrick	2	Yes	Dec-17	Jul-17	Not required	Not required	Not required	2017/18	Completed
Dunmurry	N/A	No	N/A	N/A	N/A	N/A	N/A	N/A	Stalled
Dungannon (Maginnis)	1	Yes	Nov-16	Nov-16	Aug/September 16	Nov-16	Nov-16	2016/17	Completed
Dunmurry	2	Yes	Jun-17	May-17	Not required	Not required	Not required	2017/18	Completed
Ferryhill	3	No	Apr-18	Apr-18	Sep-18	Oct-18	Dec-18	2018/19	Completed
General (Ballymore)	3	Yes	Jun-17	Jul-17	Not required	Not required	Not required	2017/18	Completed
Greenfield	3	No	Apr-18	May-18	Not required	Not required		2022/23	Completed
Larne	3	No	Nov-17	Nov-17	Not required	Not required	Not required	2017/18	Completed
Lisnashilly	2	Yes	Oct-17	Nov-17	Not required	Not required	Not required	2017/18	Completed
Lisnakee	N/A	No	N/A	N/A	N/A	N/A	N/A	N/A	Completed
Maginnis Hill	3	No	Oct-17	Nov-17	Sep-18	Nov-18	Nov-18	2022/23	Completed
New Holland (Ulster)	1	Yes	Nov-16	Nov-16	Aug/September 16	Nov-16	Nov-16	2016/17	Completed
Reconville	2	No	Mar-17	Mar-17	Aug/September 16	Sep-16	Nov-16	2016/17	Completed
Renvy	N/A	Yes	N/A	N/A	N/A	N/A	N/A	N/A	Completed
Roostersbridge	N/A	No	N/A	N/A	N/A	N/A	N/A	N/A	Completed
South Coast	3	No	Nov-17	Nov-17	Not required	Not required	Not required	2017/18	Completed
Oragh	3	No	Apr-18	Apr-18	Sep-18	Sep-18	Sep-18	2018/19	Completed
Strabane	N/A	Yes	N/A	N/A	N/A	N/A	N/A	N/A	Completed
Tandragee	3	No	On hold pending derogation study			TBC		2019/20	Stalled
Warrington	3	No	On hold pending derogation study			TBC		2022/23	Stalled
Whitehouse	1	No	Nov-16	Nov-16	Aug/September 16	Nov-16	Nov-16	2016/17	Completed

Change of sampling contract to RPS in July

On the 1st of July 2021 the Analytical Services sampling contractor transitioned from Serco to RPS. The new contract was designed to strengthen resilience with continuous improvement and efficiency plans, tighter delivery times, new Key Performance Indicators including target for response to NI Water queries and additional Quality Assurance checks.

Line 31 Impermeable Surface Area

NI Water removed 91,898m² of impermeable surface water from the combined sewerage system in 22/23.

Project No.	Project Name	Impermeable Surface removed
KG198	Hunters Mill, Annesborough Road, Lurgan, Storm Sewer Extension	67,671
KR662	34 and 41 Belfast Road, Antrim Storm sewer	21,230
KI651	First Time Services Programme (2020/21)	2,597
KB552	Ballyronan WwTW	400
Total		91,898

The confidence grade is unchanged at B2.

Lines 32-35 – PC15 and PC21 Additional Sewerage Service Output Measures

Refer to Table 40a for detailed commentary on these lines.

APPENDIX 1

Table 3 – Permitted Exceedances

No of Samples	Permitted Exceedances
4-7	1
8-16	2
17-28	3
29-40	4
41-53	5

APPENDIX 2

NORMAL OPERATING CONDITIONS UNUSUAL SITUATIONS AND NORMAL LOCAL CLIMATIC CONDITIONS

1. THE REGULATIONS' TERMINOLOGY

- 1.1 The term "normal operating conditions" is used in paragraph 4(b) of Part II of Schedule 3; the phrase "unusual situations such as those due to heavy rain" is used in paragraph 5 of Part II of Schedule 3; "normal local climatic conditions" are referred to in regulation 4(4)(a).

2. INTERPRETATION

- 2.1 In order to assist in interpreting the weather conditions that might be considered to be abnormal or unusual; a definition of exceptional weather conditions is given below, together with an example of what might be considered to be other kinds of abnormal or unusual operating conditions.
- 2.2 The abnormal conditions set out below include capital works construction and periods of industrial action. Both are being considered by the Regulatory Committee, along with other possible exceptions suggested by other Member States. An amendment to this guidance note will be issued in the light of any guidance from the Regulatory Committee.

2.3 Definitions

- 2.3.1 For the purpose of this *registered standard / consent* the works shall be deemed to have been under 'normal operating conditions' except during a period when the following apply:
- a. 'Unusual weather conditions' which shall include the following:
 - i) low ambient temperature as evidenced by effluent temperature of 5°C or less, or by the freezing of mechanical equipment in the works;
 - ii) significant snow deposits;
 - iii) fluvial flooding;
 - iv) weather conditions causing unforeseen loss of power to the works which could not be ameliorated by the reasonable provision and operation of standby generator facilities.
 - b. A reduction in the level of treatment due to periods of industrial action or acts of vandalism that could not have been reasonably prevented.
 - c. When the Regulator has issued a variation of the registered standard for reasons such as construction of capital works.

NORTHERN IRELAND WATER LIMITED - ANNUAL INFORMATION RETURN

ANNUAL INFORMATION RETURN - TABLE 17a SEWERAGE EXPLANATORY FACTOR:
SEWERAGE SUB - AREA EXPLANATORY FACTORS (TOTAL)

DESCRIPTION	UNITS	DP	1	2	3	4	5	6	7	8	9	
			AREA 1 CG	AREA 2 CG	AREA 3 CG	AREA 4 CG	AREA 5 CG	AREA 6 CG	AREA 7 CG	AREA 8 CG	Total CG	
SEWERAGE SUB AREAS												
A GENERAL												
Area name:-												
1	Annual average resident connected population	000	1								1,560.1	C3
2	Annual average non-resident population	000	1								33.6	C3
3	Volume of sewage collected (daily average)	Ml/d	1								361.6	B2
4	Total connected properties	nr	0								742,783	A2
5	Area of Sewerage District	km ²	0								13520	B2
B SEWERAGE DATA												
6	Total length of sewer	km	0								16480	B3
C Costs												
7	Sewerage: Direct Costs	£000	0								23,889	
8	Sewerage: Power Costs	£000	0								11,320	
9	Sewerage: Service Charges	£000	0								5	
10	Sewerage: General & Support Expenditure	£000	0								10,102	
11	Sewerage: Functional Expenditure	£000	0								33,992	

Table 17a Sewerage Explanatory Factors- Sewerage Sub-Area Explanatory Factors**Line 1 - Annual average resident connected population (Total)**

The guidance for Table 17a includes the following text:

“Companies must check that the following data are consistent. Companies must explain in the commentary any reasons why this data is not consistent.

- *Annual average resident connected population in table 17a (line 1, 'total' column) plus annual average non-resident population in table 17a (line 2, 'total' column) should equal the total connected population in table 13 (line 10)”*

NI Water has not calculated the Total Annual Average Resident Connected Population independently of the Total Annual Average Non-Resident Population and the Total Connected Population. Instead, the Company has used the consistency check (*above*) to derive the Total Annual Average Resident Connected Population.

- According to AIR23: Table 13: Line 10, the total connected population (comprising resident and non-resident population) is $1,593.703 \times 10^3$
- According to AIR23: Table 17a: Line 2, the annual average non-resident population is 33.629×10^3
- By calculation, the annual average resident connected population = $1,593.703 \times 10^3 - 33.629 \times 10^3 = 1,560.074 \times 10^3$

Significant year on year changes in reported figures including an explanation of any factors that may have influenced the figure

AIR21	Confidence Grade	AIR22	Confidence Grade	AIR23	Confidence Grade
$1,543.0 \times 10^3$	C3	$1,549.9 \times 10^3$	C3	$1,560.1 \times 10^3$	C3

The estimated annual average resident sewerage connected population has increased from $1,549.9 \times 10^3$ in AIR22 to $1,560.1 \times 10^3$ in AIR23, an increase of 10.2×10^3 (0.66%).

Confidence Grade

There are two figures associated with the calculation of AIR23: Table 17a: Line 1: Column 9. The first figure is derived from AIR23: Table 13: Line 10 and was allocated a confidence grade of B3. The second figure is derived from AIR23: Table 17a: Line 2: Column 9 and was allocated a confidence grade of C3. Since the lower of the two confidence grades is C3, a confidence grade of **C3** has been allocated to Table 17a: Line 1: Column 9.

Line 2 - Column 9 - Annual average non-resident population (Total)

AIR21	Confidence Grade	AIR22	Confidence Grade	AIR23	Confidence Grade
9.8×10^3	C3	20.6×10^3	C3	33.6×10^3	C3

NI Water has included holiday and tourist population connected to the sewerage system, averaged over the year.

NI Water has not included any allowance for daily commuters or day visitors.

Changes in Methodology

Background

The methodology for calculating the average non-resident sewerage population relies heavily on the ability to source a figure from available tourism statistics for the number of **non-resident visitor nights**. In the past, this figure has been available for either the most recent calendar year (*as in the case of AIR17*) or the first three quarters of the most recent calendar year (*as in the case of AIR18, AIR19 and AIR20*) but not the financial year in question.

These limitations have caused NI Water to base its reporting of the average non-resident sewerage population on a calendar year and to estimate the number of non-resident visitor nights in the calendar year when the figure has not been readily available. Estimates are based on the assumption that there is a direct relationship between the number of non-resident visitor nights and the occupancy figures for hotels and small service accommodation.

AIR23 Methodology

Continuing Impact of Covid-19 Pandemic on Northern Ireland Tourism Statistics

Tourism data is derived from a variety of sources and the COVID-19 pandemic has had a significant effect. Due to data collection issues and the quality and quantity of some data, NISRA has suspended National Statistics status for tourism data until further notice. As such, the latest full National Statistics annual accredited publication is still the 2019 edition. National Statistics status guarantees the highest standards of trustworthiness, quality and public value.

In view of the circumstances highlighted above, NI Water has continued to use the last available National Statistics accredited figure for non-resident visitor nights i.e. the figure for the 12-month period from January to December 2019 and has estimated the annual number of non-resident visitor nights in 2022.

Impact of Change in AIR23 Methodology on Reported Outturn

The change in methodology described above is not believed to have had a significant impact on the reported outturn. This can be illustrated by examining the impact that an estimate has on the calculation for Jul 18 to Jun 19 when the estimate is based on the established relationship between non-resident visitor nights and bed-spaces sold.

Ref: Tables 1.3 and 1.2 of the NISRA publications '*Northern Ireland Tourism Statistics Tables (2011 – 2020)*' dated 18/02/2021.

Total bed-spaces sold (Jul 18 to Jun 19) = 4,645,321

Estimated non-resident visitor nights (Jul 18 to Jun 19) =
 $4,645,321 \times 2.473 = 11,486,354$

Ref: Country of Residence worksheet of the NISRA publication '*Northern Ireland Tourism Statistics Microdata (January 2011 – December 2019)*' dated 22/09/2020.

- '*Estimated Overnight Trips taken in Northern Ireland by Country of Residence, Q1 2011-Q4 2019*'

Actual non-resident visitor nights (Jul 18 to Jun 19) = 12,098,471

Difference between actual and estimate =

12,098,471 - 11,486,354 = 612,116

Percentage difference = $612,116 / 12,098,471 \times 100 = 5\%$

As the difference between the actual and estimate is within the tolerance of any previously assigned confidence grading for this measure i.e. between 1% and 5%, this is deemed to be a suitable method for estimating the number of non-resident visitor nights.

Statement detailing estimation method used including date of data on which estimate is made

Assumption: There is a direct relationship between bed-spaces sold and non-resident visitor nights.

Ref:

- *Northern Ireland Monthly Hotel Occupancy – Table 3 (Publication Date: 06/04/23)*
- *Northern Ireland Small Service Accommodation Occupancy – Table 2 (Publication Date: 06/04/23)*

Total bed-spaces sold (Jan 19 to Dec 19) = 4,778,202

Total bed-spaces sold (Jan 22 to Dec 22) = 4,964,170

Ref: Country of Residence worksheet of the NISRA publication '*Northern Ireland Tourism Statistics Microdata (January 2011 – December 2019)*' dated 22/09/2020.

- '*Estimated Overnight Trips taken in Northern Ireland by Country of Residence, Q1 2011-Q4 2019*'

Non-resident visitor nights (Jan 19 to Dec 19) = 11,814,924

$11,814,924 / 4,778,202 = 2.473$

Estimated non-resident visitor nights (Jan 22 to Dec 22) =

$4,964,170 \times 2.473 = 12,274,761$

Annual average non-resident population = $12,274,761 / 365 \text{ nights} = \mathbf{33,629}$

In obtaining the estimated number of visitor nights, NI Water has avoided the assumption specified in the guidance of '*a two-thirds occupancy rate of estimated bed-spaces available for non-residents for four months in the year*'.

Significant year on year changes in reported figures including an explanation of any factors that may have influenced the figures

The AIR19 Reporter recommended that in the absence of a published figure for the number of non-resident visitor nights for the year in question, NI Water was to recalculate the Winter Population when a published figure became available and include an update on the impact of any change in the commentary for the following year.

Unfortunately, it has not been possible to recalculate the AIR22 outturn ahead of AIR23 as the most recently published figure for the number of non-resident visitor nights is **still** the figure for 2019 which was used to recalculate the AIR20 outturn and which was used last year and again this year to estimate the AIR22 and AIR23 outturns. NI Water will recalculate the AIR21 and AIR22 outturns when the numbers of non-resident visitor nights in 2020 and 2021 are confirmed by NISRA.

Last year, the Company reported a Table 17A Line 2 outturn of 20.6×10^3 . Based on the AIR23 outturn of 33.6×10^3 , the estimated annual average non-resident sewerage population has increased by 13.0×10^3 (63.1%). This increase can be attributed to an increase in the number of non-resident visitor nights. The 2022 estimate was 12,274,761 compared to the 2021 estimate of 7,523,927.

Factors impacting on tourism and winter population trends

After several years when the hospitality sector was heavily impacted by restrictions imposed by the government in dealing with the Covid-19 pandemic, there was clear evidence of tourism figures beginning to return to normal in 2022. In fact, a record number of trips were made by people from the Republic of Ireland to Northern Ireland in the first 6 months of 2022, exceeding numbers for 2019 which, at the time, was a record-breaking year.

Significant levels of concern prevail regarding the impact of rising energy costs alongside other operating costs, and the continued adverse impact of the reduction in consumers' disposable income. The challenging economic environment, aggravated by the war in Ukraine, continues to be the main factor weighing on the recovery of tourism whilst hotels, restaurants and airports will struggle to cope with labour shortages, wage demands, and high food and energy prices. All factors considered, tourism is not expected to return to pre-pandemic levels until around the end of 2023.

Confidence Grade

The annual average non-resident sewerage population is an estimate based on several sources of information:

1. The NISRA publications '*Northern Ireland Monthly Hotel Occupancy*' and '*Northern Ireland Small Service Accommodation Occupancy*' provide only an estimate of the monthly numbers of bed-spaces sold, based on the extrapolation of data for a representative sample group of establishments.
2. The NISRA publication '*Northern Ireland Tourism Statistics Microdata (January 2011 – December 2019)*' provides only an estimate of the quarterly numbers of non-resident visitor nights, based on sample surveys. The estimate therefore has an associated degree of sampling error, determined both by the sample design and by the sample size. Sample surveys include the Northern Ireland Passenger Survey (NIPS) conducted by the Northern Ireland Statistics and Research Agency (NISRA), the Survey of Overseas Travellers (SOT) conducted on behalf of Fáilte Ireland and the Household Travel Survey (HTS) conducted by Central Statistics Office (CSO).

NI Water has assigned a confidence grade of **C3** to account for known deficiencies in the reliability and accuracy of the reported figure. Although there have been changes in the methodology, data confidence is still believed to be comparable to previous years.

At the time of reporting on AIR23, the most recent non-resident visitor nights figure available was for 2019 and a figure for 2022 had to be estimated. When reporting on AIR24, NI Water will recalculate the AIR23 outturn using the published figure for 2022.

Line 3 – Volume of Sewerage Collected

This figure has been copied from AIR23 Table 14 Line 7 – Volume Waste Water Returned.

Line 4 – Total Connected Properties

NI Water's data on property counts and classifications is reported monthly from RapidXtra within the Rapid Property Summary (RPS). The data is extracted from the Diamond Warehouse via Microsoft SQL Server to produce the RPS report.

Our AIR22 methodology has remained consistent with previous years – using the automated Property Model tool to populate the Table 17a Line 4 figure (this was first introduced in AIR12 – the RPS as the input).

The RPS provides us with a snapshot at the end of each month in terms of net movement; however it alone does not support in the explanation of gross movements within the data. With this in mind, during the 20/21 reporting year the C&O Services MI & Data Team explored the use of Power BI to re-create the RPS with a drill down function to display the gross movement. The Power BI property models developed take their direct feed from the Diamond Warehouse in order to refresh. These models provide us with information on gross movements and allow us to 'slice and dice' the data from various angles, providing invaluable insights. The plan is to further enhance and incorporate these models across the business during 2023/24.

Customer/Property information is updated through:

- BAU ('business as usual') customer contacts, such as new connection requests, customer move in/move outs, or
- through Data Quality initiatives/Projects, and/or
- Metering work streams e.g. UNHH (Selectives), Optants, and Proactive Meter Exchange etc.

Under the Water & Sewerage Services (2006) Order, NI Water were required to install meters on all new household connections from April 2007. This practice has stopped as directed by a change in legislation, which took effect in July 2016. The legislation was amended by Regulations, which in effect relieved NI Water of the obligation to install meters at newly connected domestic properties. As domestic customers are not charged on a measured basis, the property is reported as unmeasured. Some domestic properties were initially reported as measured in AIR10 but this was rectified as per the erratum to AIR10. Depending on the basis for charging when domestic billing is introduced, these customers can be activated as measured household if required.

The difference between the AIR22 and the AIR23 figures is 6451. The breakdown can be explained as follows:

1. New Connections during the 2022/23 reporting year. The figures are based on data supplied by our Customer Connections Team and represent completed connections during the reporting year. The projections for New Connections remain in line with the agreed PC21 forecasts, however, if we notice an upturn or downturn, we will review and amend (during the compilation of the Principle Statement)
2. Added as a result of a customer contact. i.e. septic tank empty request, no water complaint, blocked sewer, updating of standing data e.g. removal of services etc. Within this category there are 2 scenarios:
 - a. The adding of properties NI Water allegedly did not know about

- b. The adding of duplicates as the customer's address could not be found on Rapid. Rapid may hold the site number but when the customer contacts NI Water, they quote the verified postal address, which is different, therefore creating a duplicate. The street name may also have changed from the time of New Connection to that of customer contact (street names can change in the early stages of site development).
3. Removal/reclassification of properties as a result of data quality initiatives/projects
 - a. Duplicate properties
 - b. Reclassification of properties that were recorded in error
4. Change in occupancy status – movement from void/vacant to occupied and vice-versa.

For NI Water, accurate property data is fundamental for many systems and processes, including customer service, metering, billing, consumption, leakage and Major Incident Planning & Response. The Rapid Customer Contact System contains the master property data for NI Water.

As Data Owner for Property Standing Data, The Head of C&OD Services is responsible for the property standing data held by NI Water; this is monitored and managed through the Corporate Property Register (CPR) Project. The C&OD Business Services MI & Data Team chair this group.

The role of the CPR project is to agree a single consistent source of property data and to ensure that there is appropriate governance, controls and reporting for changes made to core data on the system. As Property Data Owners, we need to ensure the processes around creation, maintenance and demolition of properties are governed and appropriate control points and associated reporting are in place. Control is key for us; as such we have identified the systems, processes and people using property information across the business, alongside confirming data accuracy and endeavouring to reduce the opportunities for erroneous data entry and creation (such as the inability to recreate demolished properties or duplicate properties).

The issues under consideration were identified as of corporate relevance, therefore to ensure appropriate direction and governance the CPR was formalised. Key objectives include:

1. To agree a single consistent source of property data.
2. To ensure the source property data represents accurate, up-to-date information appropriate for use by the business.
 - a. To understand and agree data primacy in respect of data updates from NI Water and external (Land & Property Services - LPS) sources
 - b. To ensure the processes around creation (i.e. New Connections), maintenance and demolition of properties are governed and appropriate control points and associated reporting are in place. i.e. through data validation
 - c. To co-ordinate property reconciliations between NI Water & external sources i.e. Data Sharing Agreements between NI Water & LPS, NI Water & Belfast City Council (BCC) etc and understand the reasons and validity of any differences
 - d. To understand and ensure the adequacy of long term procedures for database maintenance, including the updating of data standards and associated CDE M&M Plans

3. To ensure the reporting requirements for the business are met relating to data held on Rapid, particularly, but not exclusively, in respect of tariffs, leakage, Annual Information Returns (AIR) & Principle Statement (PS) returns.
4. Challenge the data in the areas of
 - a. Data categorisation & structure
 - b. Data robustness – i.e. where is our data good and where is there opportunity for improvement? Identify projects that could aid improvement
 - c. Data alignment – both internally and externally. Internally between systems such as Rapid, Ellipse, GIS, Diamond, Netbase, IMS etc. Externally through data reconciliations, such as LPS above.
5. To agree measures to improve the quality and integrity of the data, particularly the key CDEs as monitored by IMU
6. To agree the content and frequency of reports required by NI Water.
7. To agree the quality checking criteria for the above data and reporting and develop a Quality Plan including the determination of responsibilities and audit trails.
8. To produce & circulate an 'operate and maintain' programme for property data to the business.

The focus for the CPR project remains the same, including analysis and action on:

- Creation of an agreed single consistent source of property information, running alongside the CBC3 timelines
- Volume of properties coming onto the Rapid billing system on a monthly basis
 - new connections
 - customer contact
 - project work
- Volume of properties coming off the Rapid billing system (demolished)
 - sample check to ensure reason for demolition has been noted and on system audit trail recorded
- Volume of properties amended on the Rapid billing system
 - In particular, address fields -> building number, street name, town and postcode
 - sampling to identify if the data changes are data improvement or data regression
 - if data regression, further analysis into the process is undertaken
- Review of access privileges
 - Rapid audit
 - Through monthly audit samples
 - Internal CRs require sign off from CPR team as BAU
 - Working with Echo to review access privileges on an ongoing basis
- Interruptions to supply notices – returned mail
 - This returned mail has been previously brought to the attention of LPS and include properties that LPS have classified as live properties despite being returned as 'no such address' etc
 - The 2 way communication with LPS will help underpin our governance work and provide direction to the business on practices

Annex A details the Line Methodology followed to produce the figures for Table 17a Lines 3-4.

Line 5 - Area of sewerage district

The figure provided equates to the total land mass of Northern Ireland excluding major bodies of inland water. The same LPS product has been used to determine the Area of Sewerage District as was used in the previous AIR submission. There remains only one sewerage district for all of Northern Ireland. The confidence grade of the data will remain the same as the previous year.

Line 6 - Total length of sewer

There has been no change to the structure of the data reported on this year from the previous years that would directly affect the totals provided. The same queries have been used to extract the data from the Corporate Asset Register and have been checked to ensure that they are still relevant. The confidence grade of the data will remain the same as the previous year. Any new data will have adhered to the NIW Code of Practice for the submission of asset data ensuring that data quality levels have been maintained throughout the year.

Lines 7-11

The overall approach and allocation process for Table 17a has not changed since AIR08. There are still some limitations, and it has not been possible to fully complete the Information Returns for 2022-23. Work is ongoing, through the Cost to Serve Project. Cost to Serve is not fully implemented and therefore could not be used for AIR23. The figures populated in Column 9 have been taken from Table 22 (NIW only).

C Costs**Line 7 – Direct Costs**

It is not yet possible to split the costs into areas. A total figure has been supplied in Column 9 which agrees to the direct sewerage costs in Table 22, column 1 line 9. See Table 22 commentary. Direct Costs have increased by circa £4.7M from AIR22.

The main reason for this was increased power costs (see below) and Hired and Contracted services costs.

Line 8 – Power Costs

The figure for Power costs agrees to Table 22, line 2 column 1. See Table 22 commentary. Power costs have increased by £3.3M from AIR22 due to increased energy tariffs.

Line 9 – Services Charges

The figure for Service Charges agrees to Table 22, line 7 column 1. They are minimal for AIR23.

Line 10 – General & Support

The figure for General & Support expenditure agrees to Table 22, line 10 column 1. See Table 22 commentary and methodology. These costs have increased by £0.5m from AIR22.

Line 11 – Functional Expenditure

This is a calculated cell and is the total of line 7 and line 10. This figure agrees to Table 22, line 11 column 1. The costs in this line have increased by approx. £5.3m since AIR22. This is due to the combination of higher power costs and higher Hired and Contracted Services Costs.

Annex A Table 4 Lines 6-8 - Total Connected Properties

Total properties connected for sewerage services (including voids) at year end.

This figure is taken from the AIR232 Rapid Property Summary, as attached.



RPS - Mar YE
2023.xls

Total Gross Sewerage Properties	End March 2023
Household – Unmeasured	660565
Household - Sewerage Only	10
Household – Measured - Not Charged (test meters)	5
Household – Measured	35159
Household – Site Meters	3089
Household - Unmeasured - Not Charged	13
Non-Household - Unmeasured	13847
Non-Household – Sewerage only	18
Non-Household - Measured	30077
Total	742783

**Table 17b – Sewerage Explanatory Factors (NIW only)
Sewage Treatment Works – Large Works Information Database**

Lines 1- 8

NI Water has a number of sites which fall into the Band 6 category and are to be reported within this submission.

The WWTW to be reported on for AIR23 are:

LIMS Code	LIMS Name	Confirmed PE	AIR21 Band	BOD WOC	BOD UWWTR
S15AO	Antrim (Milltown) WWTW	71050	Band 6	10	25
S13BE	Ballymena (Tullaghgarley) WWTW	79472	Band 6	15	25
S34AK	Belfast WWTW	49482	Band 6	30	25
S34AG	Carrickfergus WWTW	31524	Band 6	30	25
S43CI	Culmore WWTW	166238	Band 6	30	25
S25AC	Dungannon (Moygashel) WWTW	91324	Band 6	25	25
S37AB	Dunmurry WWTW	51227	Band 6	10	25
S47HK	Enniskillen WWTW	28926	Band 6	20	25
S15BS	Larne WWTW	27609	Band 6	30	25
S37AA	Lisburn (New Holland) WWTW	74336	Band 6	10	25
S27AC	Newry WWTW	93088	Band 6	30	25
S34AD	Newtownbreda WWTW	37050	Band 6	15	25
S17HF	North Coast WWTW	82665	Band 6	30	25
S45IB	Omagh WWTW	35652	Band 6	30	25
S34AE	Whitehouse WWTW	111106	Band 6	30	25

No assumptions have been made for the return.

All consents reported have both BOD and SS as part of the consent as issued by Northern Ireland Environment Agency (NIEA).

There are no consents for ammonia by itself without accompanying BOD and SS consents.

The consent conditions as issued by NIEA are based on 95%ile limits.

For the purposes of reporting the WOC BOD limit has been reported for all WWTW's. It should be noted that in some instances, the UWWTR BOD limit of 25mg/l is lower, as identified in the table above.

For reference, the works in Band 5 which have the potential to be included in subsequent returns are listed here:

LIMS Code	LIMS Name	Confirmed PE	AIR21 Band
S17ED	Ballycastle	12831	Band 5
S15AA	Ballyclare	20179	Band 5
S17BP	Ballymoney	22307	Band 5
S27AA	Banbridge	24332	Band 5
S25AB	Coalisland	10821	Band 5
S13CH	Cookstown	20607	Band 5
S36AA	Downpatrick	18968	Band 5

LIMS Code	LIMS Name	Confirmed PE	AIR21 Band
S34AH	Greenisland	13501	Band 5
S36BB	Kilkeel	15183	Band 5
S43GI	Limavady	16604	Band 5
S13GK	Magherafelt	19090	Band 5
S36BO	Newcastle	17445	Band 5
S45JA	Strabane	24419	Band 5
S27AN	Tandragee	10708	Band 5
S27AD	Warrenpoint	16234	Band 5

Lines 9-15

D Costs

This table was populated in the same way as AIR22. The costs are a further breakdown by location of the Band 6 expenditure detailed in Table 17f line 6. It is populated with the information available for the year ended 31 March 2023. The Population Equivalent (PE) information used to complete this table was received from Asset Delivery on 22nd May 2023. No PPP costs are included in this table.

Line 9 – Direct Costs

Direct costs include power 521x, contractors 531x, other contractors 532x, materials 541x, chemicals 548x, cost reallocations 611x (this includes direct labours costs and & overhead charges) and service charges.

In AIR23 there are 15 works that fall into Band 6, which is the same as AIR22.

Direct costs have increased by approx. £2.0M from AIR22. This is mainly due to increased Power Costs.

Line 10 – Power Costs

Through the cost to serve project all power costs are allocated to individual sites and a report was taken from EAM to get the full year power cost per WWTW's. The power costs have increased by £2.0M since AIR22 (see Table 22 commentary).

Belfast WWTW's was treated separately as there is one electricity meter at Duncrue Street which includes the costs for the Belfast WWTW's and the two Incinerators operated by PPP. The power team supplied an estimated 42:58 split between the Belfast WWTWs and the Incinerators (based on an estimated KWhr usage and a number of sub-meters) which has been used to calculate the amount relating to Sewage Treatment at Belfast WWTW's. The split in AIR23 was 44:56 for the Belfast and Incinerators. No costs for the Incinerator have been included in this table in AIR23.

Line 11 – Service Charges

Service Charges for AIR23 are in line with AIR22.

Line 12 – General & Support

The total general & support expenditure was taken from Table 22 line 10 column 2 (see Table 22 methodology and commentary). This figure was apportioned across all the WWTWs in this table based on the cost reallocations 611X (this includes direct labours costs & overhead charges). This figure has increased by £0.5m since AIR22. See commentary on Table 22 for further breakdown and explanation.

Line 13 – Functional Expenditure

This is a calculated line and is the total of line 9 and line 12. The total in the workings agrees to Table 22 (NIW Only) column 2 line 11. Costs have increased by £2.6M since AIR 22 (see commentary above).

Line 14 – Terminal Pumping Costs

This information was populated in the same way as AIR22. No Power costs for Terminal Pumping Stations have been included in the table.

Line 15 – Sludge Costs

Sludge treatment is a separate activity in the accounts and the direct costs are not included in line 9 to line 13.

Table 17c Sewage Treatment Works Numbers

NIW only

It should be noted that the banding of the WWTWs is based on the latest Populations Equivalents minus tourist PEs (i.e. hotels and caravan parks only as information does not exist on proportion of PE to commuters). PEs for 195 WWTWs (which were live during AIR23) have been updated.

Changes regarding WWTWs from the AIR21 period are as follows:

- 3 WWTWs have been upgraded and achieved operational beneficial use in the last financial year – i.e. Ards North, Ballygowan, Loughries WwTW;
- 11 WWTWS had achieved 'operational beneficial use' under the RWwIP project (Ballycairn, Ballygavigan, Ballylumford Cottages, Ballymacawley, Drumneechy, Ferris Bay, Gortereghy, Hillcrest, Magherahoney, Maglion Terrace, Racavan);

There has been net decrease of 2 in the number of WWTWs (Ballywalter, Ballywhisken, Carrowdore are now pumpaways to the new Ards North works) from AIR22 reporting, with 1021 WWTW live on 31st March 2023.

The total number of WWTWs in Table 17c line 7 is the total of all works in this table i.e. 1,021 including the screened outfalls (2 No.) and the unscreened outfalls 5 No). The number of WWTWs in Table 15 line 8 is 1,015 as the screened and unscreened outfalls are not to be included in the total for this line.

The UR Chapter 17c guidance also requests the following cross check to be carried out, which has been completed:

- The number of large WWTWs in each treatment category in table 17c (line 6, columns 1-10) should equal the corresponding total number of large WWTWs reported in table 17b (line 8) – which for AIR23 is 15 No WWTWs.

It should be noted that the AIR23 PEs, used to populate tables 17c and 17d, were forwarded to others within the organisation who are responsible for the population of tables 17b and 17f, which should ensure consistency of reporting.

It should be noted that the Residential PE for most of the NIW WWTWs has been derived from GIS pointer data and that inaccuracies do exist in that some residential properties are labelled as commercial or industrial, and visa-versa.

The Reporters report for AIR09 recommended that a consistent approach for population figures used in the 17 series tables should be adopted. The population figures used in Table 17c are the same as in 17d. These figures have also been supplied to the other parts of the business which populate Tables 17a, 17b & 17f etc., so population figures should be consistent.

With reference to the WWTWs in Size Band 1:

- the number of WWTWs with a PE less than or equal 100 (excluding tourist PE) is 692, and
- the number of WWTWs with a PE greater than 100 but less than or equal to 250 (excluding tourist PE) is 84.

The table below highlights the changes in band sizes from AIR22 to AIR23.

Name of Works	CAR ID	AIR22 Band Sizes	AIR23 Band Sizes	Comment
Ards North	S06177	N/A	Band 4	New WwTW
Aughnacloy	S03007	Band 3	Band 4	ALP on-site PE review
Ballywalter(Retention Tank)	S05189	Band 4	Pumpaway	Pumpaway to new Ards North works
Ballywhiskin (Retention Tank)	S00827	Band 2	Pumpaway	Pumpaway to new Ards North works
Carrowdore	S00236	Band 3	Pumpaway	Pumpaway to new Ards North works
Tandragee	S02174	Band 4	Band 5	TE Updated

The table below highlights the changes in treatment category from AIR21 to AIR22.

Name of Works	CAR ID	AIR22 Treatment Category	AIR23 Treatment Category	Comment
Ards North	S06177	N/A	Sec Act	New WwTW
Ballylumford Cottages	S00260	Prim	Sec Bio	Design PE updated following RWwIP upgrade
Ballywalter(Retention Tank)	S05189	Sec Bio	Pumpaway	Pumpaway to new Ards North works
Ballywhiskin (Retention Tank)	S00827	Sea Out Screen	Pumpaway	Pumpaway to new Ards North works
Carrowdore	S00236	Ter A1	Pumpaway	Pumpaway to new Ards North works
Drumneechy	S03097	Prim	Sec Bio	Design PE updated following RWwIP upgrade
Hillcrest (Antrim)	S01111	Prim	Sec Bio	Design PE updated following RWwIP upgrade
Loughries	S00230	Ter B2	Sec Bio	Design PE updated follow capital upgrade

Difference between AIR22 and AIR23 for total in Table 17c (column 11, row 7)

Total Number of Works for AIR22 -	1,021
Total Number of Works for AIR21 -	1,023
Total Difference -	2

With reference to lines 8 and 9, data regarding the ammonia consents of the Small WWTWs (Bands 1 to 5 inclusive) was obtained from a spreadsheet of standards obtained from the Environmental Regulation Team.

Changes to lines 8 and 9 of this table, from AIR22 to present are summarised below:

Line	Nr AIR22	Nr AIR23	Difference	Comment
8	44	44	0	No consent changes during AIR22 with regards to line 8 Net change - zero
9	62	61	2	Carrowdore removed-pumpaway to Ards North Net Change - 1

It is to be noted that NIEA did not recognise the AIR15 PEs for the WWTWs in the table below and will probably not recognise the updated AIR22 PEs for these sites, for compliance reporting. They view the PEs in the last column of the table as the PEs to be used for the latter. NIEA require daily flow and load studies for a full year to substantiate drops in PE which cross UWWTD boundaries i.e. 2000pe, 50,000pe and 100,000pe. These flow and load studies were not identified in the PC21 Business Plan submission and are not currently prioritised for inclusion in the capital works programme.

WWTWs	Site ID	AIR23 Actual PE	Actual PE recognised by NIEA
Dromore (Tyrone)	S03083	1,870	2,032
Donaghmore	S02840	1,912	2,058

PPP

Lines 1-6

There are no changes from AIR22. The category of Richill STW remains Category 4 as adjusted in AIR20.

Line 9

There are no changes from AIR22. The category of Richill STW remains Category 4 as adjusted in AIR20.

Specific required commentary

- There are no doubts about the classification of any of the PPP works.
- The data is consistent with the data provided on Table 15 Line 8 (PPP Only) table.
- Based on the calculated loads treated at the PPP sewage works in the AIR23 Reporting period, there are no size band 1 PPP works on which to provide extra detail.

SMALL WORKS WITH AMMONIA CONSENTS

NORTHERN IRELAND WATER LIMITED - ANNUAL INFORMATION RETURN

ANNUAL INFORMATION RETURN - TABLE 17d SEWERAGE EXPLANATORY FACTORS

SEWAGE TREATMENT WORKS - LOADS (PPP Only)

DESCRIPTION	UNITS	DP	1	2	3	4	5	6	7	8	9	10	11	TOTAL	CG
			TREATMENT CATEGORY												
			PRIMARY	SECONDARY		TERTIARY				SEA OUTFALLS					
	ACTIVATED SLUDGE	BIOLOGICAL	A1	A2	B1	B2	PRELIMINARY TREATMENT	SCREENED	UNSCREENED						
A SMALL WORKS															
1 Load received by STWs in size band 1	kg BOD5/day	0													
2 Load received by STWs in size band 2	kg BOD5/day	0													
3 Load received by STWs in size band 3	kg BOD5/day	0													
4 Load received by STWs in size band 4	kg BOD5/day	0				152								152	B3
5 Load received by STWs in size band 5	kg BOD5/day	0				0	944							944	B3
B LARGE WORKS															
6 Load received by STWs in size band 6	kg BOD5/day	0		5,739			13,621							19,360	B3
7 Total loads rec'd (daily average all size bands)	kg BOD5/day	0		5,739		152	14,565							20,456	B3
C SMALL WORKS WITH AMMONIA CONSENTS															
8 Load rec'd by small STW w. NHS consent (5 - 10mg/l)	kg BOD5/day	0													
9 Load rec'd by small STW w. NHS consent (< = 5mg/l)	kg BOD5/day	0												1,096	

Table 17d - Sewage Treatment Works Loads

NIW only

It should be noted that the banding of the WWTWs is based on the latest Population Equivalent minus tourist PEs (i.e. hotels and caravan parks only as information does not exist on proportion of PE to commuters). PEs for 195 WWTWs (which were live during AIR23) have been updated.

The allowance for the tourist population, which has been deducted for the purposes of band size determination, has been the proportion of PE allocated to hotels, and caravan and tent pitches only. No deduction has been made for commuters as such information has not been captured.

The loads reported in this table are the sums of the loads received by each WWTWs or outfall in each particular category, and hence include the proportion of PE allocated to hotels, and caravan and tent pitches. Hence the loads reported in this table include the non-resident population.

1,021 WWTWs were reported on in Table 17d for AIR23. This represents a decrease of 2 in the number of WWTWs being reported from AIR22 to AIR23.

The Water and Sewerage Services (NI) Order 2006 designated that the discharge from hospitals, nursing homes & clinics should no longer be considered as Trade Effluent, therefore for AIR23 these have been removed from the Trade Effluent Submission. For the majority of hospitals a certain % of hospital discharges have been included due to discharges from x-ray departments and bathing pools. The PEs for the hospitals has been factored up to 100% of their total discharge to give a more accurate figure of load discharging to the sewerage network.

We have assumed the Bands to be:

Small works

- a. size band 1 <= 15kg BOD5/day (population equivalent: 0 - 250)
- b. size band 2 >15 but <= 30kg BOD5/day (population equivalent: 251 - 500)
- c. size band 3 >30 but <= 120kg BOD5/day (population equivalent: 501 – 2,000)
- d. size band 4 >120 but <= 600kg BOD5/day (population equivalent: 2,001 –10,000)
- e. size band 5 >600 but <= 1500kg BOD5/day (population equivalent: 10,001 – 25,000)

Large works

- f. size band 6 > 1500kg BOD5/day. (population equivalent: > 25,000)

It should be noted that the bandings of b, c, d and e above are slightly different from those listed in the UR Chapter 17c guidance, to ensure no duplication of works which may have 250, 500, 2000 or 10,000 PE.

The total number of WWTWs in Table 17c line 7 is the total of all NIW only works in this table i.e. 1,021 including the screened outfalls (1 No.) and the unscreened outfalls (5 No.).

The Reporters Report on AIR09 recommended that NIW correct possible overestimation of total WWTW loads due to the inclusion of offices/commercial premises. The majority of the residential and non-residential element of PEs used to calculate tables 17c and 17d was based on Pointer information from MapInfo.

However, it should be noted that the non-residential element of Pointer is made up of both commercial and unknown properties. At this present time it is not known what proportion of the unknowns are actually residential and which are non-residential and therefore it has been decided to include both elements when calculating the PEs for the band sizes.

It is difficult to estimate the proportion of load at a WWTW due to commuters, or the load which should be deducted from/added to a particular WWTW due to population commuting out of/into the catchments, which that WWTW serves. Hence no allowance to WWTWs loads has been made either way for Table 17d.

The only allowance made for newly connected properties is where a population studies have been carried out for a drainage catchment during the reporting year and the recommendations have been considered and agreed upon. Where a population study has not been completed for a drainage catchment no allowance has been made for newly connected properties. It should be noted that some drainage catchments may not have had a population review undertaken for several years. Going forward the exercise explained under 'Future Improvement' above will address this shortfall.

The confidence grades of the data in lines 1 - 7 remain as C3 as stated in AIR20.

The reporter also recommended in AIR11 that significant variances in load of WWTWs (i.e. greater than 15%) should be investigated. Below is a table detailing these sites and the reason for the change in PEs. There are 21 no. WWTWs included in the table.

Name of Works	CAR ID	AIR22 Actual PE	AIR23 Actual PE	Difference* *(-ve indicates AIR23 figure larger)	Comments
Ardglass (WWTW)	S00268	2837	2442	395	TE Updated
Ards North	S06177	0	4778	4778	Design PE updated follow capital upgrade
Aughnacloy	S03007	1921	2252	-331	ALP on-site PE review
Ballywalter(Retention Tank)	S05189	2427	0	-2428	Pumpaway to new Ards North works
Ballywhiskin (Retention Tank)	S00827	1149	0	-1149	Pumpaway to new Ards North works
Bovean	S02793	30	25	5	Pop study undertaken as part of Rural WW project
Carrowdore	S00236	1199	0	-1201	Pumpaway to new Ards North works
Castleberg (WWTW)	S03042	4588	5680	-1092	Actual PE updated with pointer data TE Updated

Name of Works	CAR ID	AIR22 Actual PE	AIR23 Actual PE	Difference* *(-ve indicates AIR23 figure larger)	Comments
Castletown (WWTW)	S03046	20	17	3	Pop study undertaken as part of Rural WW project
Feumore (WWTW)	S02406	82	98	-15	Actual PE updated with pointer data
Inishargy Road(36-48)	S00211	32	25	7	Pop study undertaken as part of Rural WW project
Killinchy (WWTW)	S00252	2462	3102	-640	TE updated
Knockanroe	S01585	12	16	-4	Pop study undertaken as part of Rural WW project
Lismoyle	S01625	31	27	4	Pop study undertaken as part of Rural WW project
Loughan Road (Tyrone)	S03175	29	23	6	Pop study undertaken as part of Rural WW project
Newry (WWTW)	S02685	65122	93088	-27967	Pop study undertaken as part of capital upgrade project TE Updated
Old Green	S01448	31	58	-27	Pop study undertaken as part of Rural WW project
Ravara Road (9-19)	S00242	16	19	-3	Actual PE updated with pointer data
Tullynakill Road	S05280	50	44	6	Pop study undertaken as part of Rural WW project
Tullyroan	S02600	41	48	-7	TE updated
Whitehouse	S00265	88,106	111,106	-23.000	Population Study undertaken by LWWP. TE Updated

***(-ve indicates AIR23 figure larger)**

The AIR definition on treatment categories states that Tertiary A2 can be defined as *Works with a secondary activated sludge process whose treatment methods also include **nutrient control using physico-chemical and biological methods***. Likewise Tertiary B2 can be

defined as *Works with a secondary biological process whose treatment methods also include **nutrient control using physico-chemical and biological methods.***

NIW has historically oversized secondary assets to meet tight ammonia consents and it is now felt that this falls within the definition of Tertiary Treatment described above i.e. **nutrient control using physico-chemical and biological methods.** In total NIW re-designated the treatment category for 33 WWTWs based on this definition for AIR14, changing 22 WWTWs from Sec Act to Ter A2 & 11 from Sec Bio to Ter B2. The treatment categories for these sites remain unchanged, following a review of the ammonia consents and treatment methods for AIR18.

NIW has a number of WWTWs (Belfast, Whitehouse and Carrickfergus) which have a total nitrogen (TN) standard in place, which is applicable to marine discharges, as opposed to an ammonia standard which is applied to freshwater discharges. Treatment category TA2 is applicable to these WWTWs as nutrient control is in place through the biological process.

The total load of 127,641.7kg BOD/day from all NIW (only) WWTWs reconciles with the Total load entering sewerage system (BOD/year) of 46,589.22t BOD/year, from Table 15 line 5.

The Total load receiving primary treatment in table 17d (line 7, column 1) of 581.3kg BOD/day is consistent (allowing for rounding up/down and conversions) with total load receiving primary treatment in table 15 (line 3) of 212.18t BOD/yr.

The Total load receiving secondary and tertiary treatment in table 17d (line 7, sum of columns 2–7) i.e. 125,562.7kg BOD/day is consistent (allowing for rounding up/down and conversions) with total load receiving secondary treatment in table 15 (line 2) i.e. 45,830.4t BOD/yr.

The Total load receiving preliminary treatment in table 17d (line 7, column 8) of 1,238.7kg BOD/day is consistent (allowing for rounding up/down and conversions) with total load receiving preliminary treatment in table 15 (line 4) (both include non-resident population) of 452.1t BOD/yr.

The table below depicts changes in PEs at WWTWs from AIR22 to AIR23.

The following table depicts how PE changes have occurred at WWTWs during the last financial year. Individual changes of 15% or greater listed.

Name of Works	CAR ID	AIR22 Actual PE	AIR23 Actual PE	Difference*	AIR22 Band	AIR23 Band	Band Size Change
Ardglass (WWTW)	S00268	2837	2442	395	Band 4	Band 4	
Ards North	S06177	0	4778	4778	N/A	Band 4	Y
Aughnacloy	S03007	1921	2252	-331	Band 3	Band 4	Y
Ballywalter(Retention Tank)	S05189	2427	0	-2428	Band 4	N/A	Y
Ballywhiskin (Retention Tank)	S00827	1149	0	-1149	Band 2	N/A	Y
Bovean	S02793	30	25	5	Band 1	Band 1	

Name of Works	CAR ID	AIR22 Actual PE	AIR23 Actual PE	Difference*	AIR22 Band	AIR23 Band	Band Size Change
Carrowdore	S00236	1199	0	-1201	Band 3	N/A	Y
Castleberg (WWTW)	S03042	4588	5680	-1092	Band 4	Band 4	
Castletown (WWTW)	S03046	20	17	3	Band 1	Band 1	
Feumore (WWTW)	S02406	82	98	-15	Band 1	Band 1	
Inishargy Road(36-48)	S00211	32	25	7	Band 1	Band 1	
Killinchy (WWTW)	S00252	2462	3102	-640	Band 4	Band 4	
Knockanroe	S01585	12	16	-4	Band 1	Band 1	
Lismoyle	S01625	31	27	4	Band 1	Band 1	
Loughan Road (Tyrone)	S03175	29	23	6	Band 1	Band 1	
Newry (WWTW)	S02685	65122	93088	-27967	Band 6	Band 6	
Old Green	S01448	31	58	-27	Band 1	Band 1	
Ravara Road (9-19)	S00242	16	19	-3	Band 1	Band 1	
Tullynakill Road	S05280	50	44	6	Band 1	Band 1	
Tullyroan	S02600	41	48	-7	Band 1	Band 1	
Whitehouse	S00265	88,106	111,106	-23,000	Band 6	Band 6	
Total for WwTW's with less than 15% PE Change	N/A	1,917,383	1,977,293	-60,073	N/A	N/A	
TOTAL				-89,756			

***(-ve indicates AIR23 figure larger)**

The change in PE equates to an increase in load of 5,385.4kg BOD/day (i.e. 89,756x 0.06 for 60g/hd/day) from AIR22 to AIR23

Difference between AIR23 and AIR22 for the total load entering WWTWs as shown in Table 17d - column 11, row 7

Total Load Received at WWTWs for AIR23 -	126,316.1
Total Load Received at WWTWs for AIR22 -	120,932
Total Difference -	5,384.1

The differences between the above totals are due to rounding.

The interpretation of the treatment categories is as below:-

AIR21 Treatment Category	Highest Form of Treatment at WWTWs	Treatment Category Abbreviation
Primary	Primary Settlement Septic Tank	Prim

Secondary Activated Sludge (Whether followed by Final settlement or not)	Oxidation Ditch Extended Aeration Activated Sludge SAF BAF MBR SBR	Sec Act
Secondary Biological (Whether followed by Final settlement or not)	Biological Filter RBC RBC Package Bioclere Package ; Reed Bed (If used as secondary treatment stage)	Sec Bio
Tertiary A1	Secondary Activated Sludge processes 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, Lockertex screens, gravel clarifiers, wedge wire clarifiers or Clariflow installed in humus tanks, where used as a tertiary treatment stage;	Ter A1
Tertiary A2	Secondary Activated Sludge processes whose methods also include phosphorous reduction, rapid-gravity sand filters, moving bed filters, pressure filters, nutrient control using physico-chemical and biological methods, disinfection, hard COD and colour removal and MBRs were used as a tertiary treatment stage;	Ter A2

AIR21 Treatment Category	Highest Form of Treatment at WWTWs	Treatment Category Abbreviation
Tertiary B1	Secondary Biological processes 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, Lockertex screens, gravel clarifiers, wedge wire clarifiers or Clariflow installed in humus tanks, where used as a tertiary treatment stage;	Ter B1
Tertiary B2	Secondary Biological processes whose methods also include phosphorous reduction, rapid-gravity sand filters, moving bed filters, pressure filters, nutrient control using physico-chemical and biological methods, disinfection, hard COD and colour removal and MBRs were used as a tertiary treatment stage;	Ter B2

AIR21 Treatment Category	Highest Form of Treatment at WWTWs	Treatment Category Abbreviation
Sea Outfalls	Where a load is discharged to sea having received only Preliminary treatment (including Grit removal and screenings conditioning) or simple screening (Bar Screen) or no screening or no treatment (Includes Retention Tanks)	Sea Out Prel Sea Out Screen Sea Out Unscreen

Changes in Line 8 - Small works with ammonia consent (between 5 and 10) from AIR2 to AIR23. Individual changes of 15% or greater listed.

Name of Works	CAR ID	AIR22 Actual PE	AIR23 Actual PE	PE Change*	Comments
Total for WwTW's with less than 15% PE Change	N/A	72,983	75,333	-2,359	26no. WwTW's from TE Updates and PE Reviews
			Total	-2,359-305	

***(-ve Indicates AIR23PE Higher)**

The change in PE equates to a load change of 141.5kg/d (i.e. 2,359 x 0.06 for 60g/hd/day) from AIR22 to AIR23, for line 8.

Total Load rec'd by small WWTWs with NH3 consents (5-10mg/l) for AIR23-	5,259
Total Load rec'd by small WWTWs with NH3 consents (5-10mg/l) for AIR22-	5,118
Total Difference –	141

Changes in Line 9 - Small works with ammonia consent (between 0 and 5) from AIR22 to AIR23. Individual changes of 15% or greater listed.

Name of Works	CAR ID	AIR22 Actual PE	AIR23 Actual PE	PE Change*	Comments
Carrowdore	S00236	1199	0	1199	Pumpaway to new Ards North works
Killinchy (WWTW)	S00252	2462	3102	-640	TE Updated
Total for WwTW's with less than 15% PE Change	N/A	225,399	228,299	-2,900	40no. WwTW's from TE Updates and PE Reviews
			Total	-2,341	

***(-ve Indicates AIR23 PE Higher)**

The change in PE equates to a load change of 140.46kg/d (i.e. 2341 x 0.06 for 60g/hd/day) from AIR22 to AIR23 for line 9.

Total Load rec'd by small WWTWs with NH3 consents (0-5mg/l) for AIR23-	14865.3
Total Load rec'd by small WWTWs with NH3 consents (0-5mg/l) for AIR22-	14,724.8
Total Difference -	140.5

PPP

Lines 1 – 7

The variation in load data from AIR22 is solely due to the variation in influent loads received by the same PPP works from the NI Water catchments over the AIR23 Period. With the additional consideration as to the affected sampling arrangements in 2021-22 arising from initial Covid-19 pandemic restrictions on sampling.

While in some cases there has been little difference in loading at PPP sites; the North Down WwTW has experienced a 19.63% Decrease in averaged Daily BOD over the entire year, Richhill WwTW has experienced a 9.79% Increase in averaged Daily BOD over the entire year, while Armagh has seen a Increase of 18.86%. Ballyrickard has additionally seen a 9.66% Decrease in averaged Daily BOD. This issue has been re-checked and the calculations verified. The prevailing rainfall does not provide an explanation, as the AIR23 period experienced 1135.5mm while the AIR22 period experienced 995.1mm of rainfall which is a 14.11% increase during the AIR23 period when compared with the AIR22 period; while the 100 year average [AREAL series] for Northern Ireland is 1100mm.

The Contractor has reported there were no apparent operational reasons for the decreases/increases, although the PPP Contractors are not in control of the upstream catchments to be aware of specific variances. The fact that the Ballynacor WwTW experienced a 1.37% Decrease in averaged Daily BOD during the same period demonstrates the variability of loading that can be experienced by WwTW's irrespective of climatic conditions, and in the case of Ballynacor possibly reflects variances in trade effluent loading from within the large industrial catchment. The Kinnegar WwTW has returned to a more expected loading experience during AIR23 and is more relatable to AIR21. This record for AIR22 had been adversely impacted by an increase in recycled loading retained within the various process stages accumulating due to a series of mechanical failures. This has been discontinued.

The load attributed to Richhill STW has Increased from last year, but the Categorisation remains as Category 4.

Line 9

The variation in load data is due to the variations as discussed above in influent loads received by the WwTW's over the AIR23 Period.

Specific company commentary

- The category of Richhill STW is Category 4.
- There are currently the following on-going Capital Works Project at various stages of design, construction and commissioning which could close, or divert flows arriving to, PPP operated works.

KR707	LWWP - Belfast WwTW phase 0 interim upgrade
KG183	Portadown Drainage Area Network Improvements - Meadow Lane and Bann Street
KS874	Bangor DAP Works Package 3 - Belfast Lough UIDs
KI776	Pump Optimisation at Water & Wastewater Assets

KS914	Scrabo Road, Newtownards, WWPS Upgrade
KS873	Bangor DAP Work Package 2: Rathmore Stream UIDs
KS872	Bangor DAP Work Package 1: Carnalea Stream UID
KA270	Neillsbrook WwPS Upgrade Appraisal
KR689	Hollywood A to Kinnegar PM
KS913	Upper Crescent WWPS Upgrade
KR504	Portaferry Road, N,Ards WWPS Upgrade
KG183	Portadown Drainage Area Network Improvements - Meadow Lane and Bann Street
KS999	Ballyrickard DA Upper Crescent WwPS
KG236	Annesborough (Lurgan) Wastewater Pumping Main

NORTHERN IRELAND WATER LIMITED - ANNUAL INFORMATION RETURN

ANNUAL INFORMATION RETURN - TABLE 17/ SEWERAGE EXPLANATORY FACTORS

SEWAGE TREATMENT WORKS - COSTS (NIW Only)

DESCRIPTION	UNITS	DP	1	2	3	4	5	6	7	8	9	10	TOTAL
			TREATMENT CATEGORY									TOTAL	
			PRIMARY	SECONDARY ACTIVATED SLUDGE	BIOLOGICAL	TERTIARY			SEA OUTFALLS				
			A1	A2	B1	B2	PRELIMINARY TREATMENT	SCREENED	UNSCREENED				
A SMALL WORKS													
1 Direct costs of STWs in size band 1	£000	3	94,168	104,632	713,147	0,000	0,000	23,007	25,384	0,000	0,000	2,115	962,453
2 Direct costs of STWs in size band 2	£000	3	0,000	91,179	406,472	56,518	26,699	120,793	87,988	0,000	0,000	0,000	789,649
3 Direct costs of STWs in size band 3	£000	3	28,191	912,792	1,412,091	222,062	934,625	527,433	405,694	97,321	0,000	15,524	4,555,733
4 Direct costs of STWs in size band 4	£000	3	42,156	1,622,185	332,464	113,110	2,429,439	87,255	301,551	106,189	13,847	0,000	5,048,196
5 Direct costs of STWs in size band 5	£000	3	0,000	1,290,584	0,000	705,431	3,656,492	0,000	237,065	0,000	0,000	0,000	5,889,572
B LARGE WORKS													
6 Direct costs of STWs in size band 6	£000	3	0,000	2,126,110	0,000	0,000	9,677,824	0,000	0,000	0,000	0,000	0,000	11,803,934
C ALL WORKS													
7 Total direct costs of STWs - all sizes	£000	3	164,515	6,147,482	2,864,174	1,097,121	16,725,079	758,488	1,057,682	203,510	13,847	17,639	29,049,537
8 Sludge Treatment and Disposal Adjustments	£000	3	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
9 Sewage Treatment: Direct costs	£000	3	164,515	6,147,482	2,864,173	1,097,121	16,725,079	758,488	1,057,682	203,510	13,847	17,639	29,049,536
10 Sewage Treatment: Power costs	£000	3	58,324	4,382,143	1,292,987	750,908	12,526,577	315,411	649,564	42,233	2,097	0,900	20,021,144
11 Sewage Treatment: service charges	£000	3	10,423	174,683	159,733	33,692	434,752	46,079	42,538	14,108	0,659	1,507	918,174
12 Sewage Treatment: General and Support	£000	3	190,265	2,853,284	2,916,036	615,007	8,270,911	841,121	776,488	257,528	12,021	27,505	16,760,168
13 Sewage Treatment: Functional Expenditure	£000	3	354,780	9,000,766	5,780,211	1,712,128	24,995,990	1,599,609	1,834,170	461,038	25,868	45,144	45,809,704

NORTHERN IRELAND WATER LIMITED - ANNUAL INFORMATION RETURN

ANNUAL INFORMATION RETURN - TABLE 17I SEWERAGE EXPLANATORY FACTORS

SEWAGE TREATMENT WORKS - COSTS (Total)

DESCRIPTION	UNITS	DP	1	2	3	4	5	6	7	8	9	10	11
			TREATMENT CATEGORY									TOTAL	
			PRIMARY	SECONDARY ACTIVATED SLUDGE	BIOLOGICAL	TERTIARY A1 A2 B1 B2			SEA OUTFALLS PRELIMINARY TREATMENT SCREENE D UNSCREENED				
A SMALL WORKS													
1 Direct costs of STWs in size band 1	£000	3	94.168	104.632	713.147	0.000	0.000	23.007	25.384	0.000	0.000	2.115	962.453
2 Direct costs of STWs in size band 2	£000	3	0.000	91.179	406.472	56.518	26.699	120.793	87.988	0.000	0.000	0.000	789.649
3 Direct costs of STWs in size band 3	£000	3	28.191	912.792	1,412.091	222.062	934.625	527.433	405.694	97.321	0.000	15.524	4,555.733
4 Direct costs of STWs in size band 4	£000	3	42.156	1,622.185	332.464		2,429.439	87.255	301.551	106.189	13.847	0.000	
5 Direct costs of STWs in size band 5	£000	3	0.000	1,290.584	0.000	705.431		0.000	237.065	0.000	0.000	0.000	
B LARGE WORKS													
6 Direct costs of STWs in size band 6	£000	3	0.000	2,126.110	0.000	0.000	15,153.459	0.000	0.000	0.000	0.000	0.000	17,279.569
C ALL WORKS													
7 Total direct costs of STWs - all sizes	£000	3	164.515	6,147.482	2,864.174		758.488	1,057.682	203.510	13.847	17.639		
8 Sludge Treatment and Disposal Adjustments	£000	3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
9 Sewage Treatment: Direct costs	£000	3	164.515	6,147.482	2,864.173	1,216.852	22,545.113	758.488	1,057.682	203.510	13.847	17.639	34,989.301
10 Sewage Treatment: Power costs	£000	3	58.324	4,382.143	1,292.987	870.639	18,346.611	315.411	649.564	42.233	2.097	0.900	25,960.909
11 Sewage Treatment: service charges	£000	3	10.423	174.683	159.733	33.692	434.752	46.079	42.538	14.108	0.659	1.507	918.174
12 Sewage Treatment: General and Support	£000	3	190.265	2,917.296	2,916.038	653.400	8,424.483	841.121	776.488	257.528	12.021	27.505	17,016.145
13 Sewage Treatment: Functional Expenditure	£000	3	354.780	9,064.776	5,780.211			1,599.609	1,834.170	461.038	25.868	45.144	

Table 17f - Sewage Treatment Works (NIW only)**Lines 1-13**

An updated Population Equivalent (PE) database with treatment type by WWTW's was sent from Asset Delivery on the 25th May 2023 which was used to populate Line 1-13. No PPP sites are included in this table. The same 15 sites in Band 6 still apply in AIR23.

Table 17f has been completed based on the figures available at for the year ended 31 March 2023 for sewage treatment – Activity 510 less M&E expenditure which is treated as general & support.

A Small Works**Line 1-4 – Size band 1-4**

Each WWTW's was assigned a finance location code, W or X. W codes are for a specific works and X codes include the costs of a number of small works. Nearly 90% of the costs can be directly allocated to WWTW's through the further implementation of Cost to Serve and the remaining direct costs are apportioned across the appropriate WWTW's based on PE or direct labour.

Direct Costs include power 521x, contractors 531x, other contractors 532x, materials 541x, chemicals 548x, cost reallocations 611x (this includes direct labours costs and & overhead charges) and service charges.

Through the cost to serve project all power costs are allocated to individual sites and a report was taken from EAM to get the full year power cost per WWTW's. There is one electric meter at each site and all the power costs are coded to each individual works to sewage treatment. The Field Managers responsible for each WWTW's estimated the percentage use for sludge treatment and sewage treatment at each WWTW's. This was multiplied by the Power costs at the site to calculate the portion relating to sewage treatment.

The type of treatment at each WWTW's was provided by Asset Management and this was used to assign costs to Column 1-10.

In total the costs have increased in Lines 1-4 from AIR22 by circa £2.3M.

Line 5 – Size band 5

Direct costs for sewage treatment, at each location in Size Band 5, were recorded and matched to the appropriate type of treatment.

The costs have increased from AIR22 by circa £1.6M.

B Large Works**Line 6 – Size band 6**

This line agrees with Line 9 in Table 17b. No PPP sites have been included.

The costs have increased from AIR22 by circa £2.1M. See Table 17b commentary.

C All Works**Line 7 – Total Direct Costs**

This is a calculated line and it's the total of Line 1-6. This figure agrees with Table 22, Column 2 Line 9.

The total direct costs have increased since AIR22 by circa £6.0M. This is due to the movements in the costs of band sizes commented on above.

Line 8 – Sludge Treatment & Disposal Adjustment

These costs are not included in the total of Line 7 therefore this line is zero.

Line 9 – Direct Costs

This line is equal to Line 7 and is the total direct costs for each type of treatment. This figure agrees with Table 22, Column 2 Line 9.

Line 10 – Power Costs

Through the cost to serve project all power costs are allocated to individual sites and a report was provided by the Energy Finance Business Partner for the full year power cost per WWTW's. Power costs have increased from AIR22 by £5.1m. This figure agrees with Table 22, Column 2 Line 2.

Line 11 – Service Charges

£0.9M of environmental regulatory charges are included in Sewage, which is a £0.2m increase since AIR22.

Line 12 – General & Support

The Total General & Support expenditure was taken directly from Table 22 (NIW only) Line 10 Column 2 (see Table 22 commentary) and apportioned across the locations based on direct costs.

This figure has increased by £0.9M from AIR22. See commentary on Table 22 for further breakdown and explanation.

Line 13 – Functional Expenditure

This is a calculated line and is the total of Line 9 and Line 12. The total agrees to Table 22 (NIW Only) Column 2 Line 11. The total costs have increased from AIR22 by circa £6.9M for all the reasons mentioned under the lines above. Refer to Table 22 commentary for further explanation.

PPP Only

Lines 1- 3 – Size bands 1- 3

There are no PPP sites sized within these categories. Therefore, this is a nil return for these size bands.

Line 4 – Size band 4

Direct costs associated with Richhill (TA1) include power costs only derived from the Oracle system using the appropriate location code.

Line 5 – Size band 5

Direct costs associated with Armagh (TA2) include power costs only derived from the Oracle system using the appropriate location code.

Line 6 – Size band 6

No costs are reported for Kinnegar (SAS) direct costs as Kinnegar power costs are part of the Concessionaire's payment to the Operating Company.

Costs for North Down, Ballyrickard and Ballynacor (all TA2) include power costs only derived from the Oracle system using appropriate location codes.

Line 9 - Direct costs

This refers to power only. See comments on Line 10 below.

Line 10 - Power

Kinnegar (SAS) remains unreported as power costs are not incurred by NIW directly but through the Concessionaire payments.

Power costs have increased significantly from AIR22 as a result of higher global power prices which has resulted in significantly higher average tariffs in the reporting year, with the average APPU increasing by 32% from AIR22.

The total of this line reconciles to table 22 line 2 column 2.

Line 12 – General & support

General and support costs have been calculated using all staff and overhead costs for the contracts management team together with PPP related professional managed service costs – PPP Professional Advisors. Costs have been attributed to schemes in accordance with management's estimated time spent by each member of staff on each contract, with such costs spread equally on schemes therein. Professional Advisors costs are attributable to a contract by invoice. General and support costs have been allocated to facilities on a straight line basis according to the number of facilities in each scheme.

The total on this line reconciles to table 22 line 10 column 2.

NORTHERN IRELAND WATER LIMITED - ANNUAL INFORMATION RETURN

ANNUAL INFORMATION RETURN - TABLE 17g SEWERAGE EXPLANATORY FACTORS
 SLUDGE TREATMENT AND DISPOSAL INFORMATION (NIW Only)

DESCRIPTION	UNITS	DP	1	2	3	4	5	6	7	8	9	10		
			FARMLAND UNTREATED G	FARMLAND CONVENTIONAL G	FARMLAND ADVANCED G	INCINERATION G	TO PPP G	LANDFILL CG	COMPOSTED G	LAND RECLAMATION CG	OTHER G	TOTAL G		
1 Resident population served	000	1					1,519.5	C3	15.2	C3	25.4	C3	1,560.1	C3
2 Amount of sewage sludge	ttds	1					29.9	A2	0.3	B2	0.5	B2	30.7	B2
3 Sludge treatment: direct costs	£000	3									7,414.402		7,414.402	
4 Sludge disposal: direct costs	£000	3									93.364		3,598.502	
5 Sludge treatment & disposal: direct costs	£000	3					3,435.148		69.990		7,507.766		11,012.904	
6 Sludge treatment & disposal: power costs	£000	3									6,949.634		6,949.634	
7 Sludge treatment & disposal: services charges	£000	3									284.952		284.952	
8 Sludge treatment & disposal: general & support exp.	£000	3									4,366.607		4,366.607	
9 Sludge treatment & disposal: functional expenditure	£000	3					3,435.148		69.990		11,874.378		15,379.511	

Table 17g - Sewerage explanatory factors - sludge treatment and disposal information

The methodology has not changed from AIR22. All Sludge is transported and disposed of at the Incinerator or another PPP site.

The costs in Table 17g are populated with the information available for the year ended 31 March 2023.

Line 1 - Resident population served

The resident population served is that reported in T17a L1 as required in the Utility Regulator's guidance documentation.

Lines 1.5, 1.6 & 1.9 have been estimated using a pro-rata value based on the total sewage sludge disposal data from SLS and the WW Sludge Management monthly report. The pro-rata population figures have been assigned CGs of C3 accordingly based on the C3 CG of the base population data.

Line 2 – Amount of sewage sludge

This is the total sewage sludge produced (NIW Only) for 2022/23 (tds) as recorded by PPP and monthly by Ww Area Sludge Officers (reconciled using the SLS) and presented in the monthly Sludge Management Report along with an estimated quantity of WwTW & WwPS grit & screenings removed as part of the treatment process and disposed of under Tender C1088.

Line 2.5 has been based on the total sewage sludge disposal (NIW Only) data from SLS and the WW Sludge Management monthly report.

Line 2.6 is an estimated quantity of WwTW's & WwPS's grit & screenings removed as part of the treatment process and disposed of under Tender C1088.

Line 2.9 is an estimated quantity of WwTW's & WwPS's grit removed as part of the treatment process and collected under Tender C1088. This element of grit is sent to ReCon who treat and process the grit into a re-usable material - for use in concrete products.

Line 3 – Sludge Treatment: Direct Costs

Expenditure has been input in Column 9. These costs have increased by £1M since AIR22 mainly due to increased Power Costs.

Sludge treatment costs for WWTW's are coded using activity 621 and can be separately identified to populate Column 9.

Power costs in AIR23 do not include the Incinerator or any PPP sites.

Line 4 - Sludge Disposal: Direct Costs

Columns 5, 6 and 9 have been populated on this line. The direct costs have increased by £0.4m since AIR22 mainly due to Hired and Contracted Services Costs.

Line 5 - Sludge Treatment & Disposal: Direct Costs

This is a calculated line and is the total of line 3 and line 4. The figure agrees with Table 22 (NIW Total) column 3 line 9. Costs have increased by £1.4M since AIR22.

Line 6 – Sludge Treatment & Disposal: Power Costs

Power costs associated with Sludge Treatment are used to populate Column 9. Power costs have been allocated to every site through cost to serve. There is only one electric metre at each WWTW's so an estimate was received for each WWTW's from the wastewater field managers so that a split could be calculated at each works between sludge and sewage treatment at the sites where both activities occur. The power team supplied a split between the Incinerators and Belfast WWTW's which was used apportion a cost to the works. The split for this in AIR22 was 42:58 and in AIR23 is 44:56 for the Belfast and Incinerators (based on an estimated KWhr usage and a number of sub-meters). No costs for the Incinerator have been included in this table in AIR23.

Line 7 - Sludge treatment & disposal: Service Charges

The Service Charges figure is approx. £0.3m in AIR23 and this is similar to what the costs were in AIR22. PPC (Pollution Prevention Control) Permits are included as Sludge Treatment and therefore included in Column 9. The Service Charges figure agrees to Table 22, Line 7 Column 3.

Line 8 - Sludge treatment & disposal: General & Support

This figure was taken directly from Table 22 (NIW only) Column 3 Line 10 and apportioned across the columns in Table 17g based on direct labour costs. This is following the same methodology as AIR22. Overall General and Support costs have increased by £0.9m since AIR22. See Table 22 commentary. A detailed breakdown of general & support is included in the commentary for Table 21 & 22.

Line 9 – Sludge treatment & disposal: Functional Expenditure

This is a calculated line and is the total of Line 5 and Line 8. Total costs have increased by £2.2M due to the reasons given above.

NORTHERN IRELAND WATER LIMITED - ANNUAL INFORMATION RETURN

ANNUAL INFORMATION RETURN - TABLE 18 REGULATORY ACCOUNTS (HISTORICAL COST ACCOUNTING)
 PROFIT AND LOSS ACCOUNT FOR YEAR ENDING 31 MARCH

DESCRIPTION	UNITS	DP	1	2	3	4	5	6	7	8	9	10	11	12
			2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
1 Turnover	£m	3	367,287	372,851	381,099	409,662	422,314	412,533	434,164	473,700				
2 Operating costs (excluding HCD)	£m	3	-207,727	-210,758	-219,231	-186,971	-195,772	-209,681	-243,236	-273,884				
3 Historical cost depreciation	£m	3	-54,364	-55,773	-56,418	-82,165	-84,274	-88,080	-91,424	-98,895				
4 Operating income	£m	3	0.799	0.656	1,035	0.551	0.467	0.193	0.588	0.420				
5 Operating profit	£m	3	105,995	106,976	106,485	141,077	142,735	114,965	100,089	101,341				
6 Other income	£m	3	0.000	0.000	0.000	0.000	0.000	0.000	1.120	0.000				
7 Net interest receivable less payable	£m	3	-53,609	-53,804	-56,253	-63,684	-64,374	-62,362	-62,660	-63,442				
8 Profit on ordinary activities before taxation	£m	3	52,386	53,172	50,232	77,393	78,361	52,603	38,549	37,899				
9 Current tax	£m	3	-0.017	-0.012	-0.009	0.000	-0.405	0.405	0.000	0.000				
10 Deferred tax	£m	3	2,536	-6,430	-18,286	-14,018	-35,032	-11,798	-76,278	-2,484				
11 Profit on ordinary activities after taxation	£m	3	54,905	46,730	31,937	63,375	42,924	41,210	-37,729	35,415				
12 Extraordinary items	£m	3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000				
13 Profit for the year	£m	3	54,905	46,730	31,937	63,375	42,924	41,210	-37,729	35,415				
14 Dividends	£m	3	-22,888	-21,510	-21,153	-23,759	-25,185	-26,619	-27,482	-17,121				
15 Retained profit for the year	£m	3	32,017	25,220	10,784	39,616	17,739	14,591	-65,211	18,294				
ADDITIONAL DISCLOSURES														
16 IFRIC 18 Income	£m	3				12,303	12,895	9,934	13,635	12,453				
17 IFRS 15 Income	£m	3				34,295	46,713	40,680	39,994	29,682				

Table 18 – HC Profit and Loss account for the year ending 31 March 2023

- Results of unappointed activities are shown separately in the published regulatory accounts.
- There are no exceptional charges or income.
- There are no minority interests.
- PPP charges for 2022/23 can be analysed as follows:

	Gross Charge	Lease repayment	Capital maintenance	HC Depreciation	Net P&L Charge
	£m	£m	£m	£m	£m
	24.940	(5.052)	(1.516)	4.127	22.499
	28.977	(5.037)	(2.018)	4.563	26.485
	1.848	(0.317)	(0.124)	0.188	1.595
Total	55.765	(10.406)	(3.658)	8.878	50.579

* includes lease interest of [REDACTED], [REDACTED], [REDACTED] shown in line 7 of Table 18.

** Omega gross charge includes constructive liability debit of £1.732m.

- PPP elements of line 2 'Operating Costs' are [REDACTED]. Additionally within Line 3 'HCD' there are depreciation costs for the Alpha Project of [REDACTED], Omega [REDACTED] and Kinnegar of [REDACTED].

The Current and Deferred tax charge

Factors affecting the tax charge for the current period

The income tax expense in the statutory accounts for the period is £2.484m which is lower than the charge based on the standard rate of corporation tax in the UK (19%). The differences are explained below:

Reconciliation of effective tax rate	2023 £m	2022 £m
(Loss)/ Profit for the year	37.293	(34.042)
Income tax expense	2.484	76.278
Profit before income tax	39.777	42.236
Income tax using the Company's domestic tax rate (19%)	7.557	8.025
Change in tax rate	1.526	69.120
Non-deductible expenses/ (non-taxable income)	(3.172)	0.294
Other timing differences	-	-
Adjustment to prior years	(3.874)	(1.209)
Group relief not chargeable	0.447	0.048
	2.484	76.278

The statutory accounts income tax expense of £2.484m can be shown as follows:

Tax recognised in profit and loss

	2023 £m	2022 £m
Current tax expense		
Current year	-	-
Adjustment for prior years	-	-
	-	-
Deferred Tax		
(Origination)/ reversal of timing differences	6.358	9.760
Adjustment to prior years	(3.874)	0.041
Change in tax rate	<u>0.000</u>	<u>66.477</u>
Tax charge on profit on ordinary activities	2.484	76.278

This statutory income tax expense of £2.484m under IFRS is shown in the Regulatory Accounts as follows:

	Appointed activities	Unappointed activities	Total
	£m	£m	£m
Current tax	-	-	-
Deferred tax	2.484	-	2.484
Total	2.484	-	2.484

The statutory accounts deferred tax expense of £2.484m is wholly allocated to appointed activities since the temporary tax timing differences associated with the deferred tax charge reside only in the appointed part of the business.

The statutory deferred tax liability at 31st March 2023 is £313.719m. Table 19 shows a deferred tax liability on the appointed balance sheet of £303.051m (with zero balance at 31st March 2023 for unappointed activities). This liability reconciles to the IFRS based statutory accounts balance at 31st March 2023 of £313.719m as the Accounts are required to show the deferred tax asset of £1.228m associated with the pension liability within the deferred tax balance rather than the approach of showing this amount separately within the pension account. The regulatory accounts balance of £313.719m can be summarised as follows:

	2023 £m	2023 £m	2023 £m
	Excluding Pension	Pension	Total
Opening liability	299.339	(9.156)	290.183
Current year deferred tax charge/(credit) to profit and loss account	3.712	(1.228)	2.484
Current year deferred tax rate change to the Statement of Total Recognised Gains and Losses (17% to 19%)	-	-	-
Current year deferred tax charge to the Statement of Total Recognised Gains and Losses	-	21.052	21.052

Closing liability	303.051	10.668	313.719
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Deferred tax is shown separately in the Regulatory Accounts and rolled up into the balance shown within the pension asset on the balance sheet as follows:

	2023
	£m
Benefit obligation at end of year	(253.684)
Fair value of plan assets at end of year	<u>300.141</u>
Net liability	46.457
Less deferred tax	<u>10.668</u>
Pension liability after deferred tax	<u>57.125</u>

The actuarial assumptions underpinning the valuation of the NIW defined benefit scheme assets and liabilities can be shown as follows:

Weighted average assumptions used to determine benefit obligations at:	31-Mar-23	31-Mar-22
Discount rate	4.80%	2.80%
Rate of compensation increase	2.70% until 2024, 3.70% thereafter	3.00% until 2024, 4.00% thereafter
Rate of increase in pensions in payment	3.10%	3.40%
Rate of increase in pensions in deferment	3.10%	3.40%
Inflation RPI	3.00%	3.30%
Inflation CPI	2.70%	3.00%
Weighted average assumptions used to determine net pension cost for year ended:	31-Mar-23	31-Mar-22
Discount rate	2.80%	2.20%
Rate of compensation increase	3.00% for the next 2 years 4.00% thereafter	2.60% for the next 2 years 3.60% thereafter
Rate of increase in pensions in payment	3.40%	3.10%
Inflation	3.30%	3.00%

Any changes to the assumptions from 2022 to 2023 have been advised by the independent actuaries.

There is a pension asset at 31 March 2023 of £57.125m (after deferred tax).

A dividend of £19.000m was proposed, approved and paid in 2022/23 and thus there is a dividend in Table 18 for the current year.

The approach to dividends is to allocate an amount of dividend to unappointed activities in the year that will reduce the ongoing build-up of cash balances within the unappointed

balance sheet. This is achieved by allocating dividend to unappointed activities to achieve nil profit on these activities.

In the year ended 31st March 2023 £17.121m of the statutory dividend of £19.000m was allocated to appointed activities and £1.879m allocated to unappointed activities.

Operating Costs

Cost components in Operating Costs

The following cost components of Line 2 (£273.884m) are provided below:

Employment Costs	70.204m [^]
Power	83.093m [*]
Rates	28.908m [*]
Contractors	30.829m [*]
Customer services	7.711m
Materials and consumables	13.462m
General and support expenditure	19.270m
PPP Operating Charges	13.109m
PPP Operating Charges	11.558m
PPP Operating Charges	1.234m
Other	<u>(5.494m)</u>
Total	273.884m

* includes an amount relating to unappointed activities that cannot be extracted out for the summary above.

[^] stated before an amount is capitalised (see later in commentary).

Interest

Interest received and payable can be summarised as follows:

	£m	£m
Interest received		
Bank Interest	0.612	
Cash Pooling	0.258	
Sub Debt	1.218	
Total Interest received		2.088
Interest Payable:		
On bonds held as security	(0.304)	
On all other loans	(58.405)	
On Finance leases	(15.842)	
On Pension Fund	(0.615)	
Total Interest Payable		(75.166)
Net Interest		(73.078)

Capitalisation of costs

During 2022/23 £19.477m of costs were capitalised from the profit and loss account. This can be broken down as follows:

Cost	£m
Staff Costs	16.319
Labour charge	0.557
Temporary staff	0.069
Consultants	-
Overheads capitalised	2.532
Total	19.477

The majority of cost capitalised relate to staff costs and overheads. These costs relate to the NIW staff who spend their time on capital projects e.g. Engineering Procurement or Asset Management staff. These costs will add to the value of the completed asset.

Comparison to prior year

A comparison to 2022/23 can be shown as follows:

	Actual	Actual
	2022 - 2023	2021 - 2022
	£m	£m
Sales	473.700	434.164
Expenditure	(372.359)	(332.955)
Net Operating Profit	101.341	101.209
Operating Margin	21.4%	23.3%
Interest payable	(63.442)	(62.660)
Tax charge	(2.484)	(76.278)
(Loss)/ Profit for the year	35.415	(37.729)
Net Profit Margin	7.5%	(8.7%)

Explanation of variances on sales, operating profit and interest payable are outlined in the commentary to Table 20.

Systems and controls

The company uses the Oracle financial system to produce monthly and annual accounting information. The Oracle General Ledger produces a trial balance and the detailed accounts are summarised to produce the year end statutory accounts. A series of spreadsheets are then used to analyse appointed and non-appointed sales and costs to produce the financial information for the Regulatory Accounts and AIR Tables.

The company is progressing a major project to develop a costing system. In terms of regulatory reporting the main tables requiring costing information are Tables 21 and 22 and the commentaries for these tables detail how an interim costing solution is being used to populate these tables until the new costing system is in place.

This new costing solution is also intended to provide better information for the allocation of costs to non-appointed activities (which is currently based on a set of high level costing assumptions).

Internal Controls

The company continues to place great emphasis on internal financial controls throughout the organisation.

IFRS 15 Income

In 2018/19 the company adopted IFRS 15 and changed its accounting policy such that the value of transfers of assets from customers £29,682k (2022: £39,994k) has been taken to a deferred credit reserve and amortised over the life of the related asset. The amount recognized as income in the current year is £4,085k (2022: £3,787k).

In accordance with IFRS 15, other capital contributions of £12,453k (2022: £13,635k) has been taken to revenue. This is the same as how IFRIC 18 income was previously recognised pre-2018/19. This is shown in the table as IFRIC 18 income for identification purposes.

NORTHERN IRELAND WATER LIMITED - ANNUAL INFORMATION RETURN

ANNUAL INFORMATION RETURN - TABLE 19c: REGULATORY ACCOUNTS (HISTORICAL COST ACCOUNTING)
STATEMENT OF TOTAL RECOGNISED GAINS AND LOSSES

DESCRIPTION	UNITS	DP	1	2	3	4	5	6	7	8	9	10	11	12
			2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
A CAPITAL EXPENDITURE CATEGORIES														
1 Profit for the year	Em	3	32,017	25,220	10,784	39,616	17,739	14,591	-65,211	18,294				
2 Actuarial gains/losses on post employment plans	Em	3	4,294	-46,621	41,180	-9,413	-0,353	-23,983	33,157	63,154				
3 Other gains and losses	Em	3	0,000	0,000	0,000	-0,013	0,000	0,000	0,000	0,000				
4 Total recognised gains and losses for the year	Em	3	36,311	-21,401	51,964	30,190	17,386	-9,392	-32,054	81,448				

Table 18c – STRGL (HCA)

Line 2 shows £63.154m of actuarial gains on post-employment plans.

The Regulatory Accounts for 2022/23 are based on IFRS and the actuarial gains and fair value gains noted above are taken from the IFRS Statutory Accounts.

NORTHERN IRELAND WATER LIMITED - ANNUAL INFORMATION RETURN

ANNUAL INFORMATION RETURN - TABLE 16d REGULATORY ACCOUNTS (HISTORICAL COST ACCOUNTING)
ANALYSIS OF DIVIDENDS AND INTEREST CHARGES FOR YEAR

DESCRIPTION	UNITS	DP	1	2	3	4	5	6	7	8	9	10	11	12
			2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
A DIVIDEND ANALYSIS														
1 Dividends in respect of a financial re-organisation	Em	3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
2 Other ordinary dividends	Em	3	-22.888	-21.510	-21.153	-23.759	-25.185	-26.619	-27.482	-17.121				
3 Total dividends	Em	3	-22.888	-21.510	-21.153	-23.759	-25.185	-26.619	-27.482	-17.121				
B INTEREST ANALYSIS														
4 Interest receivable/payable on intercompany balances	Em	3	0.000	0.000	0.115	0.361	0.389	0.048	1.357	1.475				
5 Interest receivable/payable in respect of a financial re-organisation	Em	3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000				
6 Indexation element of index-linked bonds	Em	3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000				
7 Preference share dividends	Em	3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000				
8 Other interest receivable	Em	3	0.096	0.070	0.052	0.100	0.063	1.389	0.007	0.612				
9 Other interest payable	Em	3	-46.604	-47.111	-48.414	-44.859	-51.306	-52.134	-54.105	-58.708				
10 Other finance charges - post employment costs	Em	3	-0.400	-0.200	-1.600	-0.460	-0.735	-0.646	-1.233	-0.615				
11 Other finance charges	Em	3	-6.701	-6.562	-6.406	-18.926	-19.261	-17.551	-16.892	-15.942				
12 Total net interest	Em	3	-53.609	-53.803	-56.253	-63.684	-69.850	-68.866	-70.666	-73.078				
13 Capitalisation of Interest	Em	3				5.014	5.477	6.503	6.886	9.636				

Table 18d – Analysis of dividends and interest charges

A dividend was proposed and approved in 2022/23 and this is shown on line 2. The full dividend for 2022/23 was £19.000m with £17.121m apportioned to appointed activities and £1.879m apportioned to unappointed activities.

See commentary to Table 18 in relation to the approach to the apportionment of dividend to appointed and unappointed activities.

Interest receivable (£1.475m) relates to intercompany cash pooling interest.

Interest payable of £58.708m is comprised of £58.414m relating to the loan notes held with Dfl, £0.304m relating to interest payable on cash bonds and £0.010m relating to interest on corporation tax. The interest on loan notes has increased from last year by £4.313m (8.0%). The increase, as in the prior year, is due to the additional interest on the drawdown of £155m additional loan notes in 2022/23. (Generally the interest payable on loan notes will rise year on year as the outstanding liability steadily rises. This occurs as new loans are taken out to cover in year capital expenditure whilst at the same time the loans are not repayable until 2027/2034/2042).

Other finance charges – post employment plans is a cost of £0.615m for the finance interest cost relating to post employment plans calculated by the actuaries of the pension fund at year end.

During 2022/23 an amount of £15.842m (2021/22: £16.692m) has been included as other finance charges. £15.800m of this relates to the imputed interest on the finance lease underpinning the on-balance sheet [REDACTED] Project. With the change to IFRS in 2018/19, both [REDACTED] Project became on balance sheet. £0.042m relates to imputed interest on finance leases on the implementation of IFRS 16 Leases in 2019/20.

The following table compares the actual net interest payable and balance of loan notes with the 2022/23 budget:

	Actual	Budget
	£m	£m
Net Interest payable	73.078	72.449
Loan notes	1,594.560	1,599.560

* Omega interest [REDACTED] and Kinnegar interest [REDACTED] were not included in the FD.

NORTHERN IRELAND WATER LIMITED - ANNUAL INFORMATION RETURN

ANNUAL INFORMATION RETURN - TABLE 19 REGULATORY ACCOUNTS (HISTORICAL COST ACCOUNTING)
BALANCE SHEET AS AT 31 MARCH (TOTAL)

DESCRIPTION	UNITS	DP	1	2	3	4	5	6	7	8	9	10	11	12
			2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
A FIXED ASSETS														
1 Tangible fixed assets	£m	3	2139.613	2201.787	2262.482	3128.612	3274.623	3414.428	3601.661	3841.955				
2 Investment - loan to group company	£m	3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000				
3 Investment - other	£m	3	0.091	0.091	0.091	0.015	5.015	5.000	5.000	5.000				
4 Total fixed assets	£m	3	2139.704	2201.878	2262.573	3128.627	3279.638	3419.428	3606.661	3846.955				
B CURRENT ASSETS														
5 Stocks	£m	3	2.368	2.347	2.469	2.947	3.554	4.310	4.424	5.137				
6 Debtors	£m	3	29.832	30.386	62.428	70.856	71.492	65.229	82.202	81.020				
7 Cash	£m	3	2.015	0.412	0.723	5.711	1.359	23.860	67.212	55.399				
8 Short term deposits	£m	3	1.000	2.501	2.508	1.270	1.276		1.277	1.287				
9 Infrastructure renewals prepayment	£m	3												
10 Total current assets	£m	3	35.215	35.646	71.701	80.784	77.681	94.676	155.116	142.843				
C CREDITORS: AMOUNTS FALLING DUE WITHIN ONE YEAR														
11 Overdrafts	£m	3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000				
12 Infrastructure renewals accrual	£m	3												
13 Creditors	£m	3	-131.139	-136.204	-129.195	-128.224	-128.380	-153.551	-177.659	-206.402				
14 Borrowings	£m	3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000				
15 Corporation tax payable	£m	3	-0.189	-0.189	0.228	0.232	0.682	0.682	1.545	0.323				
16 Ordinary share dividends payable	£m	3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000				
17 Preference share dividends payable	£m	3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000				
18 Total creditors	£m	3	-137.172	-137.314	-128.967	-127.992	-127.698	-152.869	-176.114	-206.079				
19 Net current assets	£m	3	-101.957	-101.668	-57.266	-47.208	-50.017	-58.193	-20.998	-63.236				
D CREDITORS: AMOUNTS FALLING DUE AFTER MORE THAN ONE YEAR														
20 Borrowings	£m	3	-983.560	-1013.560	-1082.560	-1337.867	-1371.904	-1445.962	-1605.279	-1748.218				
21 Other creditors	£m	3	-91.751	-89.305	-87.360	-1.500	-0.537	-1.116	-2.039	-1.883				
22 Total creditors	£m	3	-1,075,311	-1,102,865	-1,169,920	-1,339,367	-1,372,441	-1,447,078	-1,607,318	-1,750,101				
E PROVISION FOR LIABILITIES AND CHARGES														
23 Deferred tax provision	£m	3	-195.465	-202.263	-221.641	-170.041	-206.586	-218.763	-299.339	-303.051				
24 Deferred income - grants and contributions	£m	3	-22.301	-23.070	-25.769	-426.885	-483.401	-524.487	-560.089	-584.939				
25 Post employment asset / (liabilities)	£m	3	-5.880	-54.767	-18.915	-29.575	-34.438	-48.545	-19.898	35.789				
26 Other provisions	£m	3	-5.035	-4.886	-4.739	-4.170	-3.990	-2.982	-9.864	-10.807				
F PREFERENCE SHARE CAPITAL														
27 Preference share capital	£m	3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000				
28 Net assets employed	£m	3	733.755	712.359	764.323	1111.381	1128.767	1119.380	1089.155	1170.600				
G CAPITAL AND RESERVES														
29 Called up share capital	£m	3	500.000	500.000	500.000	500.000	500.000	500.000	500.000	500.000				
30 Share premium	£m	3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000				
31 Profit and loss account	£m	3	62.065	40.669	92.633	439.691	457.077	447.690	417.465	498.910				
32 Other reserves	£m	3	171.690	171.690	171.690	171.690	171.690	171.690	171.690	171.690				
33 Capital and reserves	£m	3	733.755	712.359	764.323	1111.381	1128.767	1119.380	1089.155	1170.600				

Table 19 – HC Balance Sheet as at 31 March 2023

The balance sheet in the published regulatory accounts includes a separate analysis of unappointed activities.

The retained profit for the year is £18.294m (post dividend).

The P&L reserves in the Balance Sheet increased by £18.294m and this movement can be shown as follows:

Retained profit for the year	£18.294m
Pension scheme actuarial gains net of deferred tax	£63.154m
Movement in P&L Account	£81.448m

The regulatory accounts was produced in accordance with international accounting standards in conformity with the requirements of, and as applied in accordance with the provisions of, the Companies Act 2006, for the year end 31st March 2023 as directed by the Utility Regulator.

No minority interests exist.

The elements of PPP included in the table are as follows:

Line 1 - Tangible Fixed Assets

	█	█	█	Total
	£m	£m	£m	£m
Gross	131.83	154.96	13.32	300.11
Acc. Deprec	(52.90)	(58.96)	(7.90)	(119.76)
NBV	78.93	96.00	5.42	180.35

Line - 13 Creditors falling due within one year

	█	█	█	Finance lease (IFRS 16)	Total
	£m	£m	£m	£m	£m
Lease obligation due < 1 yr	5.052	5.037	0.317	0.276	10.682
Accruals	2.040	3.316	0.205	-	5.561
Total	7.092	8.353	0.522	0.276	16.243

Line 21 - Other creditors falling due after more than one year

	█	█	█	Finance lease (IFRS 16)	Total
	£m	£m	£m	£m	£m
Lease obligation due > 1 yr	64.429	88.143	0.046	1.040	153.658

Significant features and movements**Fixed Assets**

Increase of £240m in line with in year additions of £339m, capital contributions of £11.1m, HC depreciation of £99m, disposals of £0.420m.

Debtors

Decreased by £1.18m from £82.202m to £81.020m (-1.4%). This is primarily due to:

- Measured, unmeasured and TE debtors decreased by £3.0m
- Measured, unmeasured and TE bad debt provision decreased by £0.4m
- Accrued income from measured and TE customers increased by £2.1m.
- VAT receivable debtors increased by £0.06m.
- Dfl Subsidy debtor increased by £0.3m
- Other Prepayments increased by £0.3m
- PPP Capital maintenance decreased by £0.4m
- Intercompany debtor cash pooling increased by £0.9m

Cash and Short term deposits

Cash has decreased by £11.814m from £67.213m to £55.399m (-17.58%) and short term deposits have increased by £0.009m from £1.278m to £1.287m (0.7%).

The cashflow statement in Table 28 illustrates the uses of these cash and deposit monies in contributing to meeting the non opex expenditure needs for the year. This can be summarised as follows:

Non opex expenditure

Capex	£286.687m
Net Interest paid	£ 59.850m
Dividend paid	£ 17.121m
Finance Lease payments	£ 10.728m
Increase in deposit monies	£ 0.009m
Additional loan to subsidiaries	<u>£ 0.000m</u>
Total	£374.395m

Funded by:

Generated from operations	£206.427m
Grants and contributions	£ 0.375m
Loans	£155.000m
Disposal of fixed assets	£ 0.425m
Insurance proceeds	£ 0.000m
Decrease in cash	£ 11.812m
Repayment of loan from subsidiaries	<u>£ 0.356m</u>
Total	£374.395m

Deferred tax

The deferred tax balance has increased from £299.339m to £303.051m. An explanation for this has been included in the commentary to Table 18.

Borrowings > 1 year (Capital loan notes)

Borrowings have increased by £155m from £1,439.560m to £1,594.560m. The additions to capital expenditure during the year were £287m. The increase in borrowings were used to

partly fund these additions to capital expenditure with the balance of capital being financed through capital contributions and working capital.

Post-employment asset/ (liabilities)

The Pension liability of £19.898m increased to a pension asset of £35.789m (a change in value of 279.86%).

This can be shown as follows:

	£m
Opening balance at 1.4.22	(19.898)
Current Service Costs	(20.222)
Administration Costs	(1.200)
Past Service Costs	(0.000)
Contributions	13.343
Finance Cost	(0.615)
Actuarial Gain	84.206
Increase in Deferred tax asset on liability	<u>(19.825)</u>
Closing balance 31.3.23	<u>35.789</u>

Other provisions

Increased from £9.864m to £10.807m (9.56%).

This increase of £0.943m can be summarised as follows:

	£m
Decrease in holiday pay provision	(0.098)
Decrease in Public Liability provision	(0.468)
Decrease in Employer Liability provision	(0.061)
Addition of Omega Obligation provision	<u>1.570</u>
Total	<u>0.943</u>

PPP – Infrastructure renewals charge (IRC) and expenditure (IRE)

– Capital Maintenance

The table below summarises the IRC, IRE and capital maintenance during 2022/23 in relation to the PPP projects:

	████████	████████	████████	Total
	£m	£m	£m	£m
IRE	-	-	-	-
IRC	-	-	-	-
Capital maintenance	2.704	1.327	-	4.031

████████ is treated as 'on balance sheet' and an amount of the unitary charge for ██████ is deemed to be related to the carrying out of capital maintenance by the operator. For 2022-23 this is confirmed by the operator to be ██████. This amount is credited to the Profit and Loss account and debited to Alpha fixed assets.

██████████ is treated as 'on balance sheet' and an amount of the unitary charge for ██████████ is deemed to be related to the carrying out of capital maintenance by the operator. For 2022-23 this is confirmed by the operator to be ██████████. This amount is credited to the Profit and Loss account and debited to Omega fixed assets.

██████████ is treated as 'on balance sheet' and an amount of the unitary charge for ██████████ is deemed to be related to the carrying out of capital maintenance by the operator. For 2022-23 this is confirmed by the operator to be ██████████.

This capital maintenance is assumed to be 100% non-infrastructure and there are no infrastructure additions to ██████████ in 2022-23 (2021-22: nil). There has therefore been no apportionment of IRC in 2022-23 (2021-22: nil).

ANNUAL INFORMATION RETURN - TABLE 19a ANALYSIS OF BORROWINGS DUE AFTER MORE THAN ONE YEAR (HISTORICAL COST ACCOUNTING)
BALANCE SHEET AS AT 31 MARCH

1	2	3	4	5	6	7	8	9
DESCRIPTION	YEARS TO MATURITY years 0dp	PRINCIPAL SUM £m 3dp	Years to maturity x principle sum £m 3dp	REAL COUPON % 2dp	NOMINAL INTEREST RATE % 2dp	FULL YEAR EQUIVALENT NOMINAL £m 3dp	FULL YEAR EQUIVALENT REAL CASH £m 3dp	CARRYING VALUE £m 3dp
A BORROWINGS IN HEDGING RELATIONSHIPS								
A1 Fixed rate instruments								
1								
-								
50								
A2 Floating rate instruments								
51								
-								
100								
A3 Index linked instruments								
101								
-								
150								
TOTAL FOR HEDGING INSTRUMENTS								
B BORROWINGS DESIGNATED AT FAIR VALUE THROUGH PROFIT AND LOSS								
B1 Fixed rate instruments								
151								
-								
200								
B2 Floating rate instruments								
201								
-								
250								
B3 Index linked instruments								
251								
-								
300								
TOTAL FOR BORROWINGS DESIGNATED AT FAIR VALUE THROUGH PROFIT AND LOSS								
C OTHER BORROWINGS								
C1 Fixed rate instruments								
301		1	1.109		2.20%			0.275
302		0	0.101		2.20%			0.000
303		20	0.756		2.20%			0.656
304		1	0.031		2.20%			0.007
305		48	0.387		2.20%			0.362
306								
307								
308								
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363								
364								
365								
366								
367								
368								
369								
370								
C2 Floating rate instruments								
351								
-								
400								
C3 Index linked instruments								
401								
-								
450								
TOTAL FOR OTHER BORROWINGS								
D TOTALS								
E RPI assumption								
F ANALYSIS								
F INDICATIVE INTEREST RATES								
F1	Nominal interest							
F2	Cash interest							
G INDICATIVE DEBT PORTFOLIO BREAKDOWN								
G1	Floating rate debt as percentage of total debt							
G2	Fixed rate debt as percentage of total debt							
G3	Index linked debt as percentage of total debt							
G4	Fixed rate debt and index linked debt as percentage of total debt							
G5	Weighted average years to maturity							

NORTHERN IRELAND WATER LIMITED - ANNUAL INFORMATION RETURN

ANNUAL INFORMATION RETURN - TABLE 19a ANALYSIS OF BORROWINGS DUE AFTER MORE THAN ONE YEAR (HISTORICAL COST ACCOUNTING)
BALANCE SHEET AS AT 31 MARCH 2022

1	2	3	4	5	6	7	8	9	
DESCRIPTION	YEARS TO MATURITY years 0dp	PRINCIPAL SUM £m 3dp	Years to maturity x principle sum £m 3dp	REAL COUPON % 2dp	NOMINAL INTEREST RATE % 2dp	EQUIVALENT NOMINAL £m 3dp	EQUIVALENT REAL CASH £m 3dp	CARRYING VALUE £m 3dp	
A BORROWINGS IN HEDGING RELATIONSHIPS									
A1 Fixed rate instruments									
1									
-									
50									
A2 Floating rate instruments									
51									
*									
100									
A3 Index linked instruments									
101									
*									
150									
TOTAL FOR HEDGING INSTRUMENTS									
B BORROWINGS DESIGNATED AT FAIR VALUE THROUGH PROFIT AND LOSS									
B1 Fixed rate instruments									
151									
*									
200									
B2 Floating rate instruments									
201									
*									
250									
B3 Index linked instruments									
251									
*									
300									
TOTAL FOR BORROWINGS DESIGNATED AT FAIR VALUE THROUGH PROFIT AND LOSS									
C OTHER BORROWINGS									
C1 Fixed rate instruments									
301	Capital loan note issued under GBP £1,280.2bn Fixed Coupon Unsecured Loan note instrument 2027	4	627,560	2510,240	-8.25%	5.25%	32,947	32,947	627,560
302	Capital loan note issued under GBP £1,280.2bn Fixed Coupon Unsecured Loan note instrument 2027	4	20,000	80,000	-8.47%	5.03%	1,006	1,006	20,000
303	Capital loan note issued under GBP £1,280.2bn Fixed Coupon Unsecured Loan note instrument 2027	4	20,000	80,000	-8.61%	4.89%	0,978	0,978	20,000
304	Capital loan note issued under GBP £1,280.2bn Fixed Coupon Unsecured Loan note instrument 2027	4	20,000	80,000	-9.02%	4.48%	0,896	0,896	20,000
305	Capital loan note issued under GBP £1,280.2bn Fixed Coupon Unsecured Loan note instrument 2027	4	10,000	40,000	-8.37%	5.13%	0,513	0,513	10,000
306	Capital loan note issued under GBP £1,280.2bn Fixed Coupon Unsecured Loan note instrument 2027	4	10,000	40,000	-8.34%	5.16%	0,516	0,516	10,000
307	Capital loan note issued under GBP £1,280.2bn Fixed Coupon Unsecured Loan note instrument 2027	4	10,000	40,000	-8.23%	5.27%	0,527	0,527	10,000
308	Capital loan note issued under GBP £1,280.2bn Fixed Coupon Unsecured Loan note instrument 2027	4	20,000	80,000	-8.45%	5.05%	1,010	1,010	20,000
309	Capital loan note issued under GBP £1,280.2bn Fixed Coupon Unsecured Loan note instrument 2027	4	5,000	20,000	-8.70%	4.80%	0,240	0,240	5,000
310	Capital loan note issued under GBP £1,280.2bn Fixed Coupon Unsecured Loan note instrument 2027	4	15,000	60,000	-9.11%	4.39%	0,659	0,659	15,000
311	Capital loan note issued under GBP £1,280.2bn Fixed Coupon Unsecured Loan note instrument 2027	4	7,000	28,000	-10.00%	3.50%	0,245	0,245	7,000
312	Capital loan note issued under GBP £1,280.2bn Fixed Coupon Unsecured Loan note instrument 2027	4	10,000	40,000	-10.13%	3.37%	0,337	0,337	10,000
313	Capital loan note issued under GBP £1,280.2bn Fixed Coupon Unsecured Loan note instrument 2027	4	15,000	60,000	-9.88%	3.62%	0,543	0,543	15,000
314	Capital loan note issued under GBP £1,280.2bn Fixed Coupon Unsecured Loan note instrument 2027	4	18,000	72,000	-9.82%	3.68%	0,662	0,662	18,000
315	Capital loan note issued under GBP £1,280.2bn Fixed Coupon Unsecured Loan note instrument 2027	4	8,000	32,000	-9.86%	3.64%	0,291	0,291	8,000
316	Capital loan note issued under GBP £1,280.2bn Fixed Coupon Unsecured Loan note instrument 2027	4	8,000	32,000	-10.14%	3.36%	0,269	0,269	8,000
317	Capital loan note issued under GBP £1,280.2bn Fixed Coupon Unsecured Loan note instrument 2027	4	5,000	20,000	-10.28%	3.22%	0,161	0,161	5,000
318	Capital loan note issued under GBP £1,280.2bn Fixed Coupon Unsecured Loan note instrument 2027	4	20,000	80,000	-10.44%	3.06%	0,612	0,612	20,000
319	Capital loan note issued under GBP £1,280.2bn Fixed Coupon Unsecured Loan note instrument 2027	4	10,000	40,000	-10.37%	3.13%	0,313	0,313	10,000
320	Capital loan note issued under GBP £1,280.2bn Fixed Coupon Unsecured Loan note instrument 2027	4	24,000	96,000	-10.28%	3.22%	0,773	0,773	24,000
321	Capital loan note issued under GBP £1,280.2bn Fixed Coupon Unsecured Loan note instrument 2027	4	5,000	20,000	-9.51%	3.99%	0,200	0,200	5,000
322	Capital loan note issued under GBP £1,280.2bn Fixed Coupon Unsecured Loan note instrument 2027	4	8,000	32,000	-9.40%	4.10%	0,328	0,328	8,000
323	Capital loan note issued under GBP £1,280.2bn Fixed Coupon Unsecured Loan note instrument 2027	4	5,000	20,000	-9.55%	3.95%	0,198	0,198	5,000
324	Capital loan note issued under GBP £1,280.2bn Fixed Coupon Unsecured Loan note instrument 2027	4	11,000	44,000	-9.59%	3.91%	0,430	0,430	11,000
325	Capital loan note issued under GBP £1,280.2bn Fixed Coupon Unsecured Loan note instrument 2027	4	5,000	20,000	-9.64%	3.86%	0,193	0,193	5,000
326	Capital loan note issued under GBP £1,280.2bn Fixed Coupon Unsecured Loan note instrument 2027	4	5,000	20,000	-9.78%	3.72%	0,186	0,186	5,000
327	Capital loan note issued under GBP £1,280.2bn Fixed Coupon Unsecured Loan note instrument 2027	4	5,000	20,000	-9.59%	3.91%	0,196	0,196	5,000
328	Capital loan note issued under GBP £1,280.2bn Fixed Coupon Unsecured Loan note instrument 2027	4	5,000	20,000	-10.35%	3.15%	0,158	0,158	5,000
329	Capital loan note issued under GBP £1,280.2bn Fixed Coupon Unsecured Loan note instrument 2027	4	5,000	20,000	-10.30%	3.20%	0,160	0,160	5,000
330	Capital loan note issued under GBP £1,280.2bn Fixed Coupon Unsecured Loan note instrument 2027	4	8,000	32,000	-10.70%	2.80%	0,224	0,224	8,000
331	Capital loan note issued under GBP £1,280.2bn Fixed Coupon Unsecured Loan note instrument 2027	4	3,000	12,000	-10.89%	2.61%	0,078	0,078	3,000
332	Capital loan note issued under GBP £1,280.2bn Fixed Coupon Unsecured Loan note instrument 2027	4	13,000	52,000	-10.84%	2.66%	0,346	0,346	13,000
333	Capital loan note issued under GBP £1,280.2bn Fixed Coupon Unsecured Loan note instrument 2027	4	5,000	20,000	-10.44%	3.06%	0,153	0,153	5,000
334	Capital loan note issued under GBP £1,280.2bn Fixed Coupon Unsecured Loan note instrument 2027	4	8,000	32,000	-10.58%	2.92%	0,234	0,234	8,000
335	Capital loan note issued under GBP £1,280.2bn Fixed Coupon Unsecured Loan note instrument 2027	4	5,000	20,000	-10.83%	2.67%	0,134	0,134	5,000
336	Capital loan note issued under GBP £1,280.2bn Fixed Coupon Unsecured Loan note instrument 2027	4	5,000	20,000	-11.02%	2.48%	0,124	0,124	5,000
337	Capital loan note issued under GBP £600m Fixed Coupon Unsecured Loan note instrument 2034	11	5,000	55,000	-10.55%	2.95%	0,148	0,148	5,000
338	Capital loan note issued under GBP £600m Fixed Coupon Unsecured Loan note instrument 2034	11	5,000	55,000	-11.09%	2.41%	0,121	0,121	5,000
339	Capital loan note issued under GBP £600m Fixed Coupon Unsecured Loan note instrument 2034	11	5,000	55,000	-10.79%	2.71%	0,136	0,136	5,000
340	Capital loan note issued under GBP £600m Fixed Coupon Unsecured Loan note instrument 2034	11	5,000	55,000	-10.89%	2.61%	0,131	0,131	5,000
341	Capital loan note issued under GBP £600m Fixed Coupon Unsecured Loan note instrument 2034	11	10,000	110,000	-11.07%	2.43%	0,243	0,243	10,000
342	Capital loan note issued under GBP £600m Fixed Coupon Unsecured Loan note instrument 2034	11	28,000	308,000	-11.08%	2.42%	0,678	0,678	28,000
343	Capital loan note issued under GBP £600m Fixed Coupon Unsecured Loan note instrument 2034	11	12,000	132,000	-10.89%	2.61%	0,313	0,313	12,000
344	Capital loan note issued under GBP £600m Fixed Coupon Unsecured Loan note instrument 2034	11	5,000	55,000	-10.95%	2.55%	0,128	0,128	5,000
345	Capital loan note issued under GBP £600m Fixed Coupon Unsecured Loan note instrument 2034	11	5,000	55,000	-10.92%	2.58%	0,129	0,129	5,000
346	Capital loan note issued under GBP £600m Fixed Coupon Unsecured Loan note instrument 2034	11	5,000	55,000	-11.09%	2.41%	0,121	0,121	5,000
347	Capital loan note issued under GBP £600m Fixed Coupon Unsecured Loan note instrument 2034	11	6,000	66,000	-10.93%	2.57%	0,154	0,154	6,000
348	Capital loan note issued under GBP £600m Fixed Coupon Unsecured Loan note instrument 2034	11	8,000	88,000	-11.01%	2.49%	0,199	0,199	8,000
349	Capital loan note issued under GBP £600m Fixed Coupon Unsecured Loan note instrument 2034	11	17,000	187,000	-10.86%	2.64%	0,449	0,449	17,000
350	Capital loan note issued under GBP £600m Fixed Coupon Unsecured Loan note instrument 2034	11	8,000	88,000	-10.84%	2.66%	0,213	0,213	8,000
351	Capital loan note issued under GBP £600m Fixed Coupon Unsecured Loan note instrument 2034	11	10,000	110,000	-11.06%	2.44%	0,244	0,244	10,000
352	Capital loan note issued under GBP £600m Fixed Coupon Unsecured Loan note instrument 2034	11	7,000	77,000	-11.02%	2.48%	0,174	0,174	7,000
353	Capital loan note issued under GBP £600m Fixed Coupon Unsecured Loan note instrument 2034	11	7,000	77,000	-11.16%	2.34%	0,164	0,164	7,000
354	Capital loan note issued under GBP £600m Fixed Coupon Unsecured Loan note instrument 2034	11	15,000	165,000	-11.31%	2.19%	0,329	0,329	15,000
355	Capital loan note issued under GBP £600m Fixed Coupon Unsecured Loan note instrument 2034	11	5,000	55,000	-11.98%	1.52%	0,076	0,076	5,000
356	Capital loan note issued under GBP £600m Fixed Coupon Unsecured Loan note instrument 2034	11	15,000	165,000	-11.93%	1.57%	0,236	0,236	15,000
357	Capital loan note issued under GBP £600m Fixed Coupon Unsecured Loan note instrument 2034	11	7,000	77,000	-11.73%	1.77%	0,124	0,124	7,000
358	Capital loan note issued under GBP £600m Fixed Coupon Unsecured Loan note instrument 2034	11	13,000	143,000	-12.05%	1.45%	0,189	0,189	13,000
359	Capital loan note issued under GBP £600m Fixed Coupon Unsecured Loan note instrument 2034	11	5,000	55,000	-12.15%	1.35%	0,068	0,068	5,000
360	Capital loan note issued under GBP £600m Fixed Coupon Unsecured Loan note instrument 2034	11	5,000	55,000	-12.15%	1.35%	0,068	0,068	5,000
361	Capital loan note issued under GBP £600m Fixed Coupon Unsecured Loan note instrument 2034	11	5,000	55,000	-12.22%	1.28%	0,064	0,064	5,000
362	Capital loan note issued under GBP £600m Fixed Coupon Unsecured Loan note instrument 2034	11	5,000	55,000	-12.20%	1.30%	0,065	0,065	5,000
363	Capital loan note issued under GBP £600m Fixed Coupon Unsecured Loan note instrument 2034	11	15,000	165,000	-12.18%	1.32%	0,198	0,198	15,000
364	Capital loan note issued under GBP £600m Fixed Coupon Unsecured Loan note instrument 2034	11	39,000	429,000	-12.00%	1.50%	0,585	0,585	39,000
365	Capital loan note issued under GBP £600m Fixed Coupon Unsecured Loan note instrument 2034	11	9,000	99,000	-11.79%	1.71%	0,154	0,154	9,000
366	Capital loan note issued under GBP £600m Fixed Coupon Unsecured Loan note instrument 2034	11	10,000	110,000	-11.61%	1.89%	0,189	0,189	10,000
367	Capital loan note issued under GBP £600m Fixed Coupon Unsecured Loan note instrument 2034	11	20,000	220,000	-11.53%	1.97%	0,394	0,394	20,000
368	Capital loan note issued under GBP £600m Fixed Coupon Unsecured Loan note instrument 2034	11	20,000	220,000	-11.63%	1.87%	0,374	0,374	20,000
369	Capital loan note issued under GBP £600m Fixed Coupon Unsecured Loan note instrument 2034	11	15,000	165,000	-11.48%	2.02%	0,303	0,303	15,000
370	Capital loan note issued under GBP £600m Fixed Coupon Unsecured Loan note instrument 2034	11	15,000	165,000	-11.51%	1.99%	0,299	0,299	15,000
371	Capital loan note issued under GBP £600m Fixed Coupon Unsecured Loan note instrument 2034	11	10,000	110,000	-11.58%	1.92%	0,192	0,192	10,000
372	Capital loan note issued under GBP £600m Fixed Coupon Unsecured Loan note instrument 2034	11	15,000	165,000	-11.83%	1.67%	0,251	0,251	15,000
373	Capital loan note issued under GBP £600m Fixed Coupon Unsecured Loan note instrument 2034	11	10,000	110,000	-11.35%	2.15%	0,215	0,215	10,000
374	Capital loan note issued under GBP £600m Fixed Coupon Unsecured Loan note instrument 2034	11	20,000	220,000	-10.98%	2.52%	0,504	0,504	20,000
375	Capital loan note issued under GBP £600m Fixed Coupon Unsecured Loan note instrument 2034	11	35,000	385,000	-10.91%	2.59%	0,907	0,907	35,000
376	Capital loan note issued under GBP £1,750m Fixed Coupon Unsecured Loan note instrument 2042	19	15,000	285,000	-9.54%	3.96%	0,594	0,594	15,000
377	Capital loan note issued under GBP £1,750m Fixed Coupon Unsecured Loan note instrument 2042	19	25,000	475,000	-8.63%	4.87%	1,218	1,218	25,000
378	Capital loan note issued under GBP £1,750m Fixed Coupon Unsecured Loan note instrument 2042	19	10,000	190,000	-8.26%	5.24%	0,524	0,524	10,000
379	Capital loan note issued under GBP £1,750m Fixed Coupon Unsecured Loan note instrument 2042	19	16,000	304,000	-8.99%	4.51%	0,722	0,722	16,000
380	Capital loan note issued under GBP £1,750m Fixed Coupon Unsecured Loan note instrument 2042	19	15,000	285,000	-8.95%	4.55%	0,683	0,683	15,000
381	Capital loan note issued under GBP £1,750m Fixed Coupon Unsecured Loan note instrument 2042								

Table 19a – Analysis of Borrowings due after more than One Year

At 31 March 2023 NIW borrowings related to Capital Loan Notes issued under three loan note agreements; £1,280,200,000 Fixed Coupon Unsecured Loan note 2027, £600,000,000 Fixed Coupon Unsecured Loan note 2034 and £1,750,000,000 Fixed Coupon Unsecured Loan note 2042.

The Loan notes were issued under £1,750,000,000 Fixed Coupon Unsecured Loan Note 2042 facility in the period from August 2022 to 31 March 2023 as the £1,280,200,000 Fixed Coupon Unsecured Loan note 2027 facility expired on 31 March 2016 and the £600,000,000 Fixed Coupon Unsecured Loan note 2034 facility expired on 31 March 2022.

The three facilities provide finance for capital investment or other purposes approved by the lender, the Department for Infrastructure.

The loan note subscription agreements provide that the loan notes in issue before 31 March 2010 carry a fixed rate of interest of 5.25%. Loan notes issued after this date carry fixed interest rates based on a margin of 0.85% above the reference gilt rate published by FTSE-Tradeweb on the date of issue of the loan note. FTSE-Tradeweb prices are the successor prices to those produced by the UK HM Government Debt Management Office (UK DMO) up until 21 July 2017 when the UK DMO ceased producing reference prices for gilts.

In 2022/23 Capital loan notes were accounted for as held to maturity borrowings.

In addition to the capital loan note instrument NIW had a committed facility available as a £20m overdraft which is available to 31 December 2027 or the end of any later extension period brought into effect for the contract between Northern Bank Limited (trading as Danske Bank) of Donegall Square West, Belfast, BT1 6JS (the "**Bank**") and the NICS dated 1 February 2023 reference ID3151653. That facility was not utilised during 2022/23.

At 31 March 2023, NIW had finance leases which were created at the inception of IFRS 16 Leases. Any finance leases with amount due after more than one year have been shown separately in the Table itself.

NORTHERN IRELAND WATER LIMITED - ANNUAL INFORMATION RETURN

ANNUAL INFORMATION RETURN - TABLE 21 REGULATORY ACCOUNTS (HISTORIC COST ACCOUNTING)
ACTIVITY COSTING ANALYSIS - WATER SERVICE (NIW Only)

DESCRIPTION	UNITS	DP	1	2	3
			WATER RESOURCES & TREATMENT	WATER DISTRIBUTION	WATER SERVICE TOTAL
SERVICE ANALYSIS - WATER					
A DIRECT COSTS					
1 Employment costs	£m	3	4.171	11.276	15.447
2 Power	£m	3	12.993	9.078	22.071
3 Agencies	£m	3	0.000	0.000	0.000
4 Hired and contracted services	£m	3	2.787	11.791	14.578
5 Associated companies	£m	3	0.000	0.000	0.000
6 Materials and consumables	£m	3	7.087	0.491	7.578
7 Service charges	£m	3	0.730	0.000	0.730
8 Bulk supply imports	£m	3	0.000	0.000	0.000
9 Other direct costs	£m	3	0.035	0.070	0.105
10 Total direct costs	£m	3	27.803	32.706	60.509
11 General and support expenditure	£m	3	13.779	12.275	26.054
12 Functional expenditure	£m	3	41.582	44.981	86.563
B OPERATING EXPENDITURE					
13 Customer services	£m	3			6.530
14 Scientific services	£m	3			2.250
15 Other business activities	£m	3			0.269
16 Total business activities	£m	3			9.049
17 Rates	£m	3			9.387
18 Doubtful debts	£m	3			0.016
19 Exceptional items	£m	3			0.000
20 Total opex less third party services	£m	3			105.015
21 Third party services - opex	£m	3			0.000
21a PPP Unitary Charges (Opex element)	£m	3			
22 Total operating expenditure	£m	3			105.015
22a Payment by concessionaire to operator	£m	3			
C OPEX					
23 Reactive and planned maintenance infrastructure	£m	3	0.000	10.239	10.239
24 Reactive and planned maintenance non-infrastructure	£m	3	0.629	10.417	11.046
D CAPITAL MAINTENANCE					
25 Infrastructure renewals charge (excluding third party services)	£m	3			
26 Depreciation (allocated)	£m	3	11.667	23.740	35.407
27 Amortisation of deferred credits	£m	3			
28 Amortisation of intangible assets	£m	3			0.000
29 Business activities depreciation (non-allocated)	£m	3			0.001
30 Capital maintenance excluding third party services	£m	3			35.408
31 Third party services -depreciation	£m	3			0.000
32 Third party services - infrastructure renewals charge	£m	3			
33 Total capital maintenance	£m	3			35.408
34 Total operating costs	£m	3			140.423
E ADDITIONAL DISCLOSURES					
35 Infrastructure renewals charge (excluding third party services)	£m	3	25.432	0.000	25.432
36 Amortisation of deferred credits	£m	3			0.145
37 Third party services - infrastructure renewals charge	£m	3			0.000

NORTHERN IRELAND WATER LIMITED - ANNUAL INFORMATION RETURN

ANNUAL INFORMATION RETURN - TABLE 21 REGULATORY ACCOUNTS (HISTORIC COST ACCOUNTING)
ACTIVITY COSTING ANALYSIS - WATER SERVICE - (PPP Only)

DESCRIPTION	UNITS	DP	1	2	3
			WATER RESOURCES & TREATMENT	WATER DISTRIBUTION	WATER SERVICE TOTAL
SERVICE ANALYSIS - WATER					
A DIRECT COSTS					
1 Employment costs	£m	3			
2 Power	£m	3	15.728	0.000	15.728
3 Agencies	£m	3			
4 Hired and contracted services	£m	3			
5 Associated companies	£m	3			
6 Materials and consumables	£m	3			
7 Service charges	£m	3	0.093	0.000	0.093
8 Bulk supply imports	£m	3			
9 Other direct costs	£m	3	0.000	0.000	0.000
10 Total direct costs	£m	3	15.821	0.000	15.821
11 General and support expenditure (NIW Only)	£m	3	0.175	0.000	0.175
12 Functional expenditure	£m	3	15.996	0.000	15.996
B OPERATING EXPENDITURE					
13 Customer services	£m	3			
14 Scientific services	£m	3			0.000
15 Other business activities	£m	3			
16 Total business activities	£m	3			0.000
17 Rates	£m	3			7.840
18 Doubtful debts	£m	3			
19 Exceptional items	£m	3			
20 Total opex less third party services	£m	3			23.836
21 Third party services - opex	£m	3			
21a PPP Unitary Charges (Opex element)	£m	3			13.109
22 Total operating expenditure	£m	3			36.945
22a Payment by concessionaire to operator	£m	3	8.874	0.000	8.874
C OPEX					
23 Reactive and planned maintenance infrastructure	£m	3			
24 Reactive and planned maintenance non-infrastructure	£m	3			
D CAPITAL MAINTENANCE					
25 Infrastructure renewals charge (excluding third party services)	£m	3			
26 Depreciation (allocated)	£m	3	4.127	0.000	4.127
27 Amortisation of deferred credits	£m	3			
28 Amortisation of intangible assets	£m	3			0.000
29 Business activities depreciation (non-allocated)	£m	3			0.000
30 Capital maintenance excluding third party services	£m	3			4.127
31 Third party services - depreciation	£m	3			0.000
32 Third party services - infrastructure renewals charge	£m	3			
33 Total capital maintenance	£m	3			4.127
34 Total operating costs	£m	3			41.072
E ADDITIONAL DISCLOSURES					
35 Infrastructure renewals charge (excluding third party services)	£m	3	0.000	0.000	0.000
36 Amortisation of deferred credits	£m	3			0.000
37 Third party services - infrastructure renewals charge	£m	3			0.000

NORTHERN IRELAND WATER LIMITED - ANNUAL INFORMATION RETURN

ANNUAL INFORMATION RETURN - TABLE 21 REGULATORY ACCOUNTS (HISTORIC COST ACCOUNTING)
ACTIVITY COSTING ANALYSIS - WATER SERVICE - (TOTAL)

DESCRIPTION	UNITS	DP	1	2	3
			WATER RESOURCES & TREATMENT	WATER DISTRIBUTION	WATER SERVICE TOTAL
SERVICE ANALYSIS - WATER					
A DIRECT COSTS					
1 Employment costs	£m	3	4.171	11.276	15.447
2 Power	£m	3	28.721	9.078	37.799
3 Agencies	£m	3	0.000	0.000	0.000
4 Hired and contracted services	£m	3	2.787	11.791	14.578
5 Associated companies	£m	3	0.000	0.000	0.000
6 Materials and consumables	£m	3	7.087	0.491	7.578
7 Service charges	£m	3	0.823	0.000	0.823
8 Bulk supply imports	£m	3	0.000	0.000	0.000
9 Other direct costs	£m	3	0.035	0.070	0.105
10 Total direct costs	£m	3	43.624	32.706	76.330
11 General and support expenditure	£m	3	13.954	12.275	26.229
12 Functional expenditure	£m	3	57.578	44.981	102.559
B OPERATING EXPENDITURE					
13 Customer services	£m	3			6.530
14 Scientific services	£m	3			2.250
15 Other business activities	£m	3			0.269
16 Total business activities	£m	3			9.049
17 Rates	£m	3			17.227
18 Doubtful debts	£m	3			0.016
19 Exceptional items	£m	3			0.000
20 Total opex less third party services	£m	3			128.851
21 Third party services - opex	£m	3			0.000
21a PPP Unitary Charges (Opex element)	£m	3			13.109
22 Total operating expenditure	£m	3			141.960
22a Payment by concessionaire to operator	£m	3	8.874	0.000	8.874
C OPEX					
23 Reactive and planned maintenance infrastructure	£m	3	0.000	10.239	10.239
24 Reactive and planned maintenance non-infrastructure	£m	3	0.629	10.417	11.046
D CAPITAL MAINTENANCE					
25 Infrastructure renewals charge (excluding third party services)	£m	3			
26 Depreciation (allocated)	£m	3	15.794	23.740	39.534
27 Amortisation of deferred credits	£m	3			
28 Amortisation of intangible assets	£m	3			0.000
29 Business activities depreciation (non-allocated)	£m	3			0.001
30 Capital maintenance excluding third party services	£m	3			39.535
31 Third party services -depreciation	£m	3			0.000
32 Third party services - infrastructure renewals charge	£m	3			
33 Total capital maintenance	£m	3			39.535
34 Total operating costs	£m	3			181.495
E ADDITIONAL DISCLOSURES					
35 Infrastructure renewals charge (excluding third party services)	£m	3	25.432	0.000	25.432
36 Amortisation of deferred credits	£m	3			0.145
37 Third party services - infrastructure renewals charge	£m	3			0.000

NORTHERN IRELAND WATER LIMITED - ANNUAL INFORMATION RETURN

ANNUAL INFORMATION RETURN - TABLE 22 REGULATORY ACCOUNTS (HISTORIC COST ACCOUNTING)
ACTIVITY COSTING ANALYSIS - SEWERAGE SERVICE (NIW Only)

DESCRIPTION			UNITS	DP	1 SEWERAGE	2 SEWAGE TREATMENT	3 SLUDGE TREATMENT & DISPOSAL	4 SEWERAGE SERVICE TOTAL
SERVICE ANALYSIS - SEWERAGE								
A DIRECT COSTS								
1	Employment costs	£m	3	5.080	5.071	0.000	10.151	
2	Power	£m	3	11.320	20.248	3.203	34.771	
3	Agencies	£m	3	0.000	0.000	0.000	0.000	
4	Hired and contracted services	£m	3	6.984	1.766	3.600	12.350	
5	Associated companies	£m	3	0.000	0.000	0.000	0.000	
6	Materials and consumables	£m	3	0.479	1.104	0.178	1.761	
7	Service charges	£m	3	0.005	0.918	0.285	1.208	
8	Other direct costs	£m	3	0.022	0.017	0.000	0.039	
9	Total direct costs	£m	3	23.890	29.124	7.266	60.280	
10	General and support expenditure	£m	3	10.102	16.760	3.257	30.119	
11	Functional expenditure	£m	3	33.992	45.884	10.523	90.399	
B OPERATING EXPENDITURE								
12	Customer services	£m	3				5.930	
13	Scientific services	£m	3				1.923	
14	Other business activities	£m	3				0.244	
15	Total business activities	£m	3				8.097	
16	Rates	£m	3				10.244	
17	Doubtful debts	£m	3				-0.109	
18	Exceptional items	£m	3				0.000	
19	Total opex less third party services	£m	3				108.631	
20	Third party services - opex	£m	3				0.000	
20a	PPP Unitary Charges (Opex element)	£m	3					
21	Total operating expenditure	£m	3				108.631	
21a	Payment by concessionaire to operator	£m	3					
C OPEX								
22	Reactive and planned maintenance infrastructure	£m	3	2.576	0.000	0.000	2.576	
23	Reactive and planned maintenance non-infrastructure	£m	3	16.201	3.247	0.000	19.448	
D CAPITAL MAINTENANCE								
24	Infrastructure renewals charge (excluding third party services)	£m	3					
25	Depreciation (allocated)	£m	3	11.041	42.600	0.970	54.611	
26	Amortisation of deferred credits	£m	3					
27	Amortisation of intangible assets	£m	3				0.000	
28	Business activities depreciation (non-allocated)	£m	3				0.000	
29	Capital maintenance excluding third party services	£m	3				54.611	
30	Third party services - depreciation	£m	3				0.000	
31	Third party services - infrastructure renewals charge	£m	3					
32	Total capital maintenance	£m	3				54.611	
33	Total operating costs	£m	3				163.242	
E ADDITIONAL DISCLOSURES								
34	Infrastructure renewals charge (excluding third party services)	£m	3	24.058		0.000	24.058	
35	Amortisation of deferred credits	£m	3				5.015	
36	Third party services - infrastructure renewals charge	£m	3				0.000	

NORTHERN IRELAND WATER LIMITED - ANNUAL INFORMATION RETURN

ANNUAL INFORMATION RETURN - TABLE 22 REGULATORY ACCOUNTS (HISTORIC COST ACCOUNTING)
ACTIVITY COSTING ANALYSIS - SEWERAGE SERVICE (PPP Only)

DESCRIPTION	UNITS	DP	1	2	3	4	
			SEWERAGE	SEWAGE TREATMENT	SLUDGE TREATMENT & DISPOSAL	SEWERAGE SERVICE TOTAL	
SERVICE ANALYSIS - SEWERAGE							
A DIRECT COSTS							
1	Employment costs	£m	3				
2	Power	£m	3	0.000	5.940	3.747	9.687
3	Agencies	£m	3				
4	Hired and contracted services	£m	3				
5	Associated companies	£m	3				
6	Materials and consumables	£m	3				
7	Service charges	£m	3				
8	Other direct costs	£m	3	0.000	0.000	0.000	0.000
9	Total direct costs	£m	3	0.000	5.940	3.747	9.687
10	General and support expenditure (NIW Only)	£m	3	0.000	0.256	0.077	0.333
11	Functional expenditure	£m	3	0.000	6.196	3.824	10.020
B OPERATING EXPENDITURE							
12	Customer services	£m	3				
13	Scientific services	£m	3				0.120
14	Other business activities	£m	3				
15	Total business activities	£m	3				0.120
16	Rates	£m	3				1.437
17	Doubtful debts	£m	3				
18	Exceptional items	£m	3				
19	Total opex less third party services	£m	3				11.577
20	Third party services - opex	£m	3				
20a	PPP Unitary Charges (Opex element)	£m	3				
21	Total operating expenditure	£m	3				
21a	Payment by concessionaire to operator	£m	3				
C OPEX							
22	Reactive and planned maintenance infrastructure	£m	3				
23	Reactive and planned maintenance non-infrastructure	£m	3				
D CAPITAL MAINTENANCE							
24	Infrastructure renewals charge (excluding third party services)	£m	3				
25	Depreciation (allocated)	£m	3	0.000	4.751	0.000	4.751
26	Amortisation of deferred credits	£m	3				
27	Amortisation of intangible assets	£m	3				0.000
28	Business activities depreciation (non-allocated)	£m	3				0.000
29	Capital maintenance excluding third party services	£m	3				4.751
30	Third party services - depreciation	£m	3				0.000
31	Third party services - infrastructure renewals charge	£m	3				
32	Total capital maintenance	£m	3				4.751
33	Total operating costs	£m	3				
E ADDITIONAL DISCLOSURES							
34	Infrastructure renewals charge (excluding third party services)	£m	3	0.000		0.000	0.000
35	Amortisation of deferred credits	£m	3				0.000
36	Third party services - infrastructure renewals charge	£m	3				0.000

NORTHERN IRELAND WATER LIMITED - ANNUAL INFORMATION RETURN

ANNUAL INFORMATION RETURN - TABLE 22 REGULATORY ACCOUNTS (HISTORIC COST ACCOUNTING)
ACTIVITY COSTING ANALYSIS - SEWERAGE SERVICE (Total)

DESCRIPTION	UNITS	DP	1	2	3	4	
			SEWERAGE	SEWAGE TREATMENT	SLUDGE TREATMENT & DISPOSAL	SEWERAGE SERVICE TOTAL	
SERVICE ANALYSIS - SEWERAGE							
A DIRECT COSTS							
1	Employment costs	£m	3	5.080	5.071	0.000	10.151
2	Power	£m	3	11.320	26.188	6.950	44.458
3	Agencies	£m	3	0.000	0.000	0.000	0.000
4	Hired and contracted services	£m	3	6.984	1.766	3.600	12.350
5	Associated companies	£m	3	0.000	0.000	0.000	0.000
6	Materials and consumables	£m	3	0.479	1.104	0.178	1.761
7	Service charges	£m	3	0.005	0.918	0.285	1.208
8	Other direct costs	£m	3	0.022	0.017	0.000	0.039
9	Total direct costs	£m	3	23.890	35.064	11.013	69.967
10	General and support expenditure	£m	3	10.102	17.016	3.334	30.452
11	Functional expenditure	£m	3	33.992	52.080	14.347	100.419
B OPERATING EXPENDITURE							
12	Customer services	£m	3				5.930
13	Scientific services	£m	3				2.043
14	Other business activities	£m	3				0.244
15	Total business activities	£m	3				8.217
16	Rates	£m	3				11.681
17	Doubtful debts	£m	3				-0.109
18	Exceptional items	£m	3				0.000
19	Total opex less third party services	£m	3				120.208
20	Third party services - opex	£m	3				0.000
20a	PPP Unitary Charges (Opex element)	£m	3				
21	Total operating expenditure	£m	3				
21a	Payment by concessionaire to operator	£m	3				
C OPEX							
22	Reactive and planned maintenance infrastructure	£m	3	2.576	0.000	0.000	2.576
23	Reactive and planned maintenance non-infrastructure	£m	3	16.201	3.247	0.000	19.448
D CAPITAL MAINTENANCE							
24	Infrastructure renewals charge (excluding third party services)	£m	3				
25	Depreciation (allocated)	£m	3	11.041	47.351	0.970	59.362
26	Amortisation of deferred credits	£m	3				
27	Amortisation of intangible assets	£m	3				0.000
28	Business activities depreciation (non-allocated)	£m	3				0.000
29	Capital maintenance excluding third party services	£m	3				59.362
30	Third party services - depreciation	£m	3				0.000
31	Third party services - infrastructure renewals charge	£m	3				
32	Total capital maintenance	£m	3				59.362
33	Total operating costs	£m	3				
E ADDITIONAL DISCLOSURES							
34	Infrastructure renewals charge (excluding third party services)	£m	3	24.058		0.000	24.058
35	Amortisation of deferred credits	£m	3				5.015
36	Third party services - infrastructure renewals charge	£m	3				0.000

Tables 21 & 22 Activity Costing Analysis – Water & Sewerage Service

The costs in Tables 21 & 22 are populated with the updated information available at 30th May 2023 for the year ended 31st March 2023. AIR23 costs are reported using IFRS following the change made in AIR19.

Allocation of costs between expenditure types

Expenditure is classified as capital expenditure if it satisfies the following criteria:

- It exceeds the threshold limit set at £1,000 (Note: land has a capital threshold of zero) and,
- It was used for one or more of the following purposes:
 1. Initial construction or purchase of a fixed asset (e.g. land, buildings, vehicles, plant, computers);
 2. Extension of a fixed asset which increases its size or operating capacity;
 3. Improvement of a fixed asset beyond the assets original condition on construction or acquisition;
 4. To substantially extend the original life of a fixed asset;
 5. To renew or replace an existing fixed asset; and
 6. Contributions paid to another body towards the cost of work that would be fixed asset expenditure were it undertaken by NI Water, provided that the resultant ownership of the assets is vested in NI Water.

Some items, individually, may be valued at less than £1,000 but because they form part of an operational configuration they should be capitalised; for example workstations which comprise a monitor, keyboard, central processor, mouse and printer should be capitalised.

Cost includes own work capitalised comprising the direct costs of materials, labour and applicable overheads. Interest costs relating to the acquisition of fixed assets have not been capitalised in AIR23. This is consistent with past years.

Fixed assets comprise:

- **Infrastructure assets**
Infrastructure assets comprise a network of systems consisting of mains and sewers, impounding and pumped raw water storage reservoirs, sludge pipelines and sea outfalls. The infrastructure renewals charge for infrastructure assets is included in Tables 21 and 22 and is the estimated level of annual expenditure required to maintain the operating capability of the network, which is based on the Company's Asset Management Plan.
- **Other assets**
Other assets comprise:
 - a) Land and non-operational buildings;
 - b) Operational assets (consisting of sites used for water and wastewater treatment, pumping or storage where not classified as infrastructure); and
 - c) Vehicles, mobile plant and equipment.

Allocation of costs between service areas

All costs entered to NI Water's Oracle General Ledger (GL) have a 5-segment coding combination (account, cost centre, service activity, location and project). For the purpose of Tables 21 & 22 Opex costs from the General Ledger have been allocated between Water and Sewerage services and between service areas within the Water and Sewerage activities by mapping NI Water's Oracle General Ledger to the tables using the coding structure.

Expense Groups are mapped to the NIAUR cost categories – **Appendix 1** provides details of this mapping. The Services Activities segment is mapped to the NIAUR service areas – **Appendix 2** provides details of this mapping.

The only exception to this is in direct General & Support expenditure, which can relate to more than one service area or activity. These costs are collated into 5 separate 'Overhead Pots' and are apportioned either on the basis of the directly coded spend; on the basis of the total direct costs or in the case of M&E function costs using a split provided by the business. The quantum of the apportionment of the General Overhead Pots has increased from AIR22 to AIR23 (by circa £1.3M). This is explained in the General & Support section further on in the commentary. The table below shows the basis of apportionment of 'indirect' General & Support expenditure between service activities in AIR23.

Allocation of General and Support	Amount £	Water		Sewerage			Comments
		R&T	Distribution	Sewerage	Sewage Treatment	Sludge Treatment & Disp	
G&S Overhead Pot 1	44,029,908	29.7%	22.7%	16.6%	23.7%	7.4%	Non ops general spend. Excludes CS, SS & Regulation
G&S Overhead Pot 2a - Water	601,902	56.7%	43.3%	0.0%	0.0%	0.0%	Water related activities only
G&S Overhead Pot 2b - Sewerage	387,121	0.0%	0.0%	34.7%	49.7%	15.6%	Sewerage activities only
G&S Overhead Pot 3 SA 390	-11,061	29.7%	22.7%	16.6%	23.7%	7.4%	Water and sewerage networks spend only
G&S Overhead Pot 3 M&E	10,410,313	4.1%	13.4%	21.8%	60.7%	0.0%	M&E Function split based on split supplied by M&E Function

The percentage splits in AIR23 used to allocate General & Support expenditure are consistent with AIR22. The allocation to Water from General & Support Overhead Pot 1, which contains approx. 79% of the costs, is the main change in allocation where the allocation has decreased from 53.4% in AIR22 to 52.3% in AIR23. This is driven by a large increase in Power costs increasing the Total Direct Costs in Sewerage.

There is no longer any cost associated with the CRC Energy Efficiency Scheme previously included within Power.

During the year NI Water incurred less than £0.1M in fines, associated costs and provisions for fines. These costs are included within General & Support costs. In 2022-23 NI Water has not paid any fines under the Streetworks (NI) Order.

Allocation of costs to business activities and rates

All costs which relate to business activities e.g. Customer Services, Scientific Services and Regulation, were collated using the relevant cost centre segment from the Oracle General Ledger. The total expenditure attributable to these activities is apportioned to Water and Sewerage on the basis of the directly coded spend. This basis is consistent with past returns. The allocation to Water has decreased from 53.5% in AIR22 to 52.4% in AIR23 and subsequently Sewerage has increased from 46.5% in AIR22 to 47.6% in AIR23. Again this is driven by the large increase in Power costs.

The table below shows the basis of apportionment for AIR23.

Apportionment of business activities	Total £	Water		Sewerage		
		R&T	Distribution	Sewerage	Sewage Treatment	Sludge Treatment & Disp
BASIS - Total spend (Includes general & Support)	145,528,492	29.5%	22.9%	16.7%	23.5%	7.4%
Apportionment						
Water / Sewerage split	100%	52.4%		47.6%		

Rates are coded correctly at source and have fed into the relevant Table. In AIR23 overall rates are split 59.6% Water and 40.4% Sewerage which is consistent with AIR22.

Allocation of costs to unappointed activities

A final allocation of costs has been made to unappointed activities based on an assumption that these activities are either charged on a full cost recovery basis, and thus costs broadly mirror income generated, or the income does not give rise to any additional operational costs (e.g. rents received or fishing rights). This is consistent with previous AIR returns.

Atypical costs and provisions

2022/23 Atypical costs and credits

Description	Amount	Comment
PPP atypicals	████████	Primarily relating to performance deductions. See PPP section of this commentary for further information.
BI consultancy	£1.1M	Only BI related consultancy costs are deemed to be atypical. In addition to consultancy costs, NIW also incurred £1.7M in staff related costs and £0.0M in other costs in order to deliver the BI (ACE) programme in 2022-23.
Major Incidents	£1.1M	Costs arising from Freeze/Thaw in December 2022.
RPDM & UR	£(1.0M)	Balance of 2021-22 accruals increased in 2022-23.
Cloud (Capex to Opex)	£1.1M	Relating to a change in accounting treatment for cloud based software costs.
Total	████████	

Business Improvement (BI) Programme.

The Business Improvement Programme, also known as ACE (Achieving Customer Excellence) seeks to address four strategic strands:

- Improve services to Customers;
- Develop the NI Water people;
- Build a more efficient and effective organisation; and
- Exceed, where possible, quality compliance standards.

Total Opex on the BI Programme in AIR23 was £2.8M which is £0.3M lower than AIR22 (£3.1M). This is due to a decrease in Consultancy Fees.

Voluntary Early Retirement / Voluntary Severance / Ill Health retirement

During 2022-23 NI Water made no payments under Voluntary Early Retirement (VER), Voluntary Severance (VS) and Ill Health Retirement schemes. This is a decrease of £0.8M from AIR22.

Negative Opex

NIW generate income from the sale of electricity and Renewable Obligation Certificates (ROCs) by way of water turbine and solar installations and from payments made for participation in the security of electricity supply back up services. In 2022-23 this income amounted to £1.8M which is an increase of £0.4M from AIR22. This was mostly driven by increased output.

Employment Costs

Staff costs for total NI Water come to circa £71.1M as detailed below which has increased from AIR22 (£64.0M). Only circa £25.6M is included in Employment Costs (Line 1) in Tables 21 & 22 (AIR22 circa £22.9M).

The table below provides the reconciliation between these amounts:

Description	Amount	Table 21/22 location
Industrial Wages	£20.1M	
Salaries	£49.0M	
Temporary Staff	£0.9M	
Other Costs of Employment	£0.3M	
Staff Expenses	£0.8M	
Total NI Water staff costs	£71.1M	
Less:		
Customer Services	(£5.9M)	Customer Services
Scientific Services	(£2.5M)	Scientific Services
Regulation	(£0.7M)	Other Business Activities
Unallocated	(£36.4M)	General & Support
Total Employment Costs	£25.6M	£15.4M Table 21 and £10.2M Table 22

The unallocated amount of circa £36.4M is included in General & Support and has been apportioned between Table 21 and 22, across each of the columns, based on total direct costs, with the exception of M&E Employment costs which are allocated on the basis of a split provided by the business.

Total NI Water staff costs have increased by approximately £7.1M from AIR22 (£64.0M) due to an increase in Industrial Wages of £1.3M and an increase in Salaries of £6.8M. This is offset by a decrease in Other Costs of Employment of £1.1M due to no VER/IHR schemes.

Wages and Salaries have increased primarily due to annual pay increases.

Hired & Contracted

Hired and Contracted Services of circa £26.9M in Table 21 and Table 22 are split out in the table below. The corresponding charge in the AIR22 was circa £27.9M.

Hired & Contracted Services:	Table 21	Table 22	TOTAL
Operational Contractors	£13.0M	£12.1M	£25.1M
Other Contractors	£1.2M	£0.0M	£1.2M
Outsourcing	£0.4M	£0.2M	£0.6M
Consultants	£0.0M	£0.0M	£0.0M
TOTAL	£14.6M	£12.3M	£26.9M

Within the Contractors costs of £14.6M in Table 21, circa £2.8M relates to the cost of contractors for Water Treatment with the balance being the cost of contractors to facilitate the maintenance of the networks. This is a £1.2M decrease from AIR22 which will be explained in Table 21 Line 4 below. Within the Operational Contractors cost of £12.3M in Table 22, circa £3.6M is for the cost of the various Sludge Disposal Routes, circa £7.0M is for the maintenance of the Sewerage network and the balance relates to the costs of Sewage Treatment (including the costs of Skip Hire etc.). The cost of the maintenance of the Sewerage Network has increased by £0.2M from AIR22. This will be explained in Table 22 Line 4 below.

There is no spend on Consultants Fees within Hired and Contracted in AIR23.

General & Support Costs

General & Support costs have increased by circa £1.3M from AIR22 (£55.4M) to AIR23 (£56.7M).

The principal costs in this expenditure line are:

Description	Amount	Table 21/22 location
Unallocated Employment Costs	£36.4M	Included in General & Support (Removed from Employment Costs)
Unallocated Power	£0.8M	Included in General & Support (Removed from Power Costs)
Unallocated Hired & Contracted Costs	£8.4M	Included in General & Support (Removed from Hired & Contracted)
Unallocated Materials & Consumables	£1.6M	Included in General & Support (Removed from Materials & Consumables)
Unallocated Other Direct Costs	£5.8M	Included in General & Support (Removed from Other Direct Costs)
Communication	£0.7M	General & Support
Mobile V&P Charges	£1.8M	General & Support
Other	£1.2M	General & Support
Total	£56.7M	£26.2M Table 21 and £30.5M Table 22

General & Support costs were apportioned across Table 21 & Table 22 based on either the total direct costs allocated to each column or in the case of the M&E Function based on a split as supplied by the Function. Service Activities are mapped to the NIAUR service areas in **Appendix 2**. This approach was consistently applied to both AIR23 and AIR22. See the **Allocation of costs between service areas** section at the start of the commentary.

The main difference from AIR22 is in Unallocated Employment Costs (£3.6M increase). Other significant differences include Unallocated Direct Costs (£0.8M decrease) and Unallocated Other (£1.5M decrease).

The increase in Unallocated Employment Costs has been explained under Employment Costs.

The decrease in Direct Costs relates to a reduction in Legal and Professional Fees driven by output. The decrease in Other costs relates to a reduction in Regulatory Fees driven by a credit received in respect to the Annual Water Licence Fee for financial year 21/22.

Table 21 PPP only**Line 2 - Power costs**

Power costs for the PPP Alpha sites of £15.728m has increased by 26.7% from the AIR22 reported figure of £12.415m. The average price per unit (APPU) for electricity (all lots) increased by 31.9%, therefore, an overall increase of 26.7% appears reasonable when coupled with distribution input from Alpha sites falling by 1.8% in the reporting year.

Line 7 - Service charges

This line includes the costs of abstraction licences at each of the PPP Alpha sites. The figure has increased by an inflationary amount from AIR22.

Line 11 - General & support expenditure

General and support expenditure has been calculated on the same basis as in AIR22. These costs have increased from that reported in AIR22 (£175k vs £97k) largely due additional consultancy costs incurred in the reporting year.

Line 14 - Scientific services

The company does not incur any net costs associated with scientific services for Alpha as costs are offset by a reduction in the payment to the PPP Concessionaire.

Line 17 - Rates

Rates costs allocated to PPP have decreased by 0.3% (£7.840m in AIR23 vs £7.864m in AIR22). The overall cumulo rates charge increased by 1.4%, however, the proportion of DI being taken from PPP sites reduced from 46.57% to 45.79% meaning a slight reduction in the charge to PPP.

Line 21a - PPP unitary charges (Opex)

This line data is drawn directly from the Company's accounts. No additional reconciliation is required.

During the reporting year the Alpha Concessionaire recognised performance deductions of £0.349m and this is reflected in the £13.109m opex charge. The charge also includes an atypical credit of £0.722m as follows:

Quality Monitoring Change credit	(£0.552m)
EIB Step-down	(£0.076m)
Refund in respect of reorganisation costs	(£0.094m)
Total	(£0.722m)

Further details on each of these are given in the commentary to table 42 line 10. The increase of £1.948m in the unitary charge cost from AIR22 is made up as follows:

Increase in capacity charge	£2.216m
Increase in volumetric charge (inflation and flow related)	£0.370m
Increase in performance deductions	£0.042m
Increase in atypical credits	(£0.066m)
Increase in amounts capitalised	(£0.933m)
Decrease in interest element of charge	<u>£0.319m</u>
	£1.948m

Line 22a - Payment by concessionaire to operator

Inputs for this line are obtained directly from the PPP contractor.

Table 22 PPP only**Line 2 - Power costs**

Power costs have increased from AIR22 by 26.8%. This included a 38.8% increase in sewage treatment and an 11.6% increase in sludge treatment & disposal. There were a number of factors increasing the cost including the global increase in power costs which has resulted in higher average tariffs in the reporting year, with the average APPU increasing by 31.9% from AIR22 over all lots.

In terms of waste water, volumes were 7.3% higher, therefore, the increase of 38.8% since AIR22 seems reasonable when combined with an average APPU increase of 31.9%.

In terms of sludge disposal, incinerated sludge volumes were 4.8% lower than AIR22. Self-generated units from the incinerator were 22.9% higher meaning an overall decrease of 12.5% in grid units used by the incinerator since AIR22. The APPU of these grid units was 19.3% higher than the previous year. When combined with Ballynacor STC costs (which were up 48% on AIR22), the overall increase in sludge disposal is 11.6%.

The allocation of the Ballynacor site costs between Sludge & WW has been revised to reflect actual usage, however there is still a 1 year lag with 2021-22 actuals being used as a proxy for 2022-23 as outturn reports are not available until July. The allocation to sludge has reduced from 16.01% in AIR22 to 15.49% in AIR23. All other allocations are consistent with AIR22.

Kinnegar: Power costs are not recorded as

- i) they are not paid directly by the Company and
- ii) they are part of the Unitary Charge payment to the Concessionaire.

Line 8 - Other direct costs

Nil

Line 10 - General & support expenditure

The general and support expenditure has been calculated in the same way as for AIR22 reflecting all costs associated with P101 cost centre. These costs have increased from ██████████ in AIR22 to ██████████ in AIR23 largely due to increased consultancy costs.

Total general and support costs associated with the Omega contract were calculated at ██████████ and two sevenths of this has been allocated to column 3 to reflect costs associated with Duncrue and Ballynacor sludge facilities, the remaining five sevenths are associated with the 5 Omega WWTW facilities and are reported along with Kinnegar in column 2.

Line 13 - Scientific services

Scientific Services costs reflect the contract sampling and analysis costs borne by the Company in providing its sampling and analytical contractual obligations to the Kinnegar and Omega Facilities in Service: Kinnegar, North Down, Richhill, Ballyrickard, Ballynacor and Armagh. This cost has decreased from AIR22 (██████████) in AIR23 vs ██████████ in AIR22) mainly as a result of decreased number of samples at Kinnegar.

Line 16 - Rates

The rates figure for Kinnegar and each of the Omega sites were taken directly from the rates bills. The bill for the Duncrue site was allocated between PPP and NIW in line with the total area of the site occupied by PPP. PPP occupy 15% of the Duncrue site. The increase in rates cost in AIR23 is 1.1% relative to AIR22.

Line 20a - PPP unitary charges (Opex)

Kinnegar costs have decreased by [REDACTED] from [REDACTED] in AIR22 to [REDACTED] in the reporting year. The difference is due to a number of factors as set out below:

Increase in volumetric charge (inflation and flow related)	[REDACTED]
Decrease in atypical credits	[REDACTED]
Increase in amounts capitalised	[REDACTED]
Decrease in interest element of charge	[REDACTED]
	[REDACTED]

Omega costs have increased by £3.727m from £7.831m in AIR22 to £11.558m in the reporting year. The movements causing this decrease have been set out below and is mainly due to higher variable costs.

Increase in volumetric charge (inflation and flow related)	[REDACTED]
Increase in atypical credits	[REDACTED]
Increase in amounts capitalised	[REDACTED]
Decrease in interest element of charge	[REDACTED]
	[REDACTED]

This line includes atypical debits of [REDACTED] on Omega and atypical credits of £0.512m in Kinnegar. Further details on all of these atypical amounts are given in the commentary to line 10 of table 42.

Line 21a - Payment by concessionaire to operator

Inputs for this line are obtained directly from the PPP contractor.

Table 21 – NI Water Total**A - Direct Costs**

Table 21 Total Expenditure has increased by circa £13.7M from AIR22 to AIR23. This is mainly driven by increases in Power £9.4M, Employment Costs £1.4M and Materials and Consumables £1.8M detailed below. Various other variances which are explained on a line-by-line basis below:

- Line 1: Employment costs have increased by circa £1.4M from AIR22. This is due to the annual inflationary pay rise.
- Line 2: Power costs include electricity costs and fuel costs for power generation. Overall the costs have increased by £9.4M from AIR22. The reason for this is due to a large increase in energy tariffs. Power costs include £15.7M related to PPP.
- Line 3: Agencies – there are no costs in this line.
- Line 4: Hired and Contracted Services have decreased by circa £1.2M from AIR22. The decrease is driven by higher capitalisation of costs including Networks Maintenance and Leakage Detection as indicated by PC21 and Sustainable Economic Level of Leakage calculations.
- Line 5: Associated companies – there are no costs in this line.
- Line 6: Materials and Consumables have increased from AIR22 by £1.8M. The increase is driven by higher Material & Consumable costs due to factors such as energy costs & haulage costs. The main increase is in Chemicals where the production process can be heavily energy dependent.

- Line 7: Service Charges – the costs are £0.8M with the majority of the costs in WRT for abstraction licences. These are consistent with AIR22. Service Charges include circa £0.1M for PPP.
- Line 8: Bulk Supply imports – there are no costs in this line.
- Line 9: Other Direct Costs are immaterial and in line with AIR22.
- Line 10: Total Direct Costs – this is a calculated line and is the total of Line 1-9. AIR23 direct costs are £11.4M higher than AIR22. This is driven by the increase in Power, Employment Costs and Materials and Consumables as detailed above.
- Line 11: General & Support expenditure has decreased by circa £0.1M from AIR22 to AIR23. The reason for the decrease in the costs in Table 21 is the decrease in the percentage of General & Support expenditure allocated to Water.

The percentages used are calculated on the total of Direct Costs for General & Support Pot 1 & 2 which decreased from AIR22. See the Allocation of costs between service areas section at the start of the commentary. Service Activities are mapped to the NIAUR service areas in **Appendix 2**.

The NI Water total costs are immaterial for PPP.

- Line 12: This is the calculated total line for functional expenditure which has increased by £11.3M from AIR22 as a result of the increase in Total Direct Costs as already discussed above and the decrease in General & Support Costs as explained in Line 11 above. Line 12 includes £16.0M of costs associated with PPP (AIR22 £12.6M).

B - Operating Expenditure

- Line 13: Customer Services costs have increased £0.4M from AIR22 in Table 21. This is driven by an increase in total Customer Services costs offset by a reduction in the percentage allocation to Water (as already discussed). The increase in costs is due to higher Outsourcing and Consultant costs relating to the renewal of NIW Customer Contact and Billing System. Customer Services costs are apportioned based on the percentage of direct costs from Table 21 & 22. In AIR23 the percentage split was calculated at 52.4% Table 21 and 47.6% Table 22. In AIR22 the percentage split was 53.5% and 46.5% between Table 21 & 22 respectively.
- Line 14: Scientific Services costs have increased £0.2M from AIR22. This is driven by Employment Costs as detailed above. Scientific Services costs have been split using the same percentage basis as Customer Services as detailed above in line 13.
- Line 15: Other Business Activities – Regulatory costs have decreased £0.3M from AIR22 as a result of lower Regulation consultancy costs. These costs are apportioned on the same basis as Line 13 and Line 14.
- Line 16: Total Business Activities – this is a calculated line and is the total of Line 13, 14 and 15 and has increased £0.3M from AIR22 as detailed above.
- Line 17: Local authority rates are broadly in line with AIR22 and have increased £0.3M. Rates include circa £7.8M relating to PPP sites.
- Line 18: Doubtful debts have decreased by £0.1M from AIR22. The doubtful debts have split between Table 21 and Table 22 on a specific line by line basis, consistent with what was done in AIR22.
- Line 19: Exceptional items– there are no costs in this line.
- Line 20: Total Opex less third-party services – this is a calculated line and is the total of line 12,16,17,18 and 19. This has increased by circa £11.7M from AIR22 driven by the increases in the costs as detailed above.
- Line 21: Third party services are immaterial.
- Line 21a: Total PPP Unitary Charge has increased by circa £1.9M from the AIR22 charge at £13.1M in AIR23. See Table 42 commentary for details.

- Line 22: Total operating expenditure, this is a calculated line and is the total of line 20, 21 and 21a. This line has increased by £13.7M from AIR22 due to the increase in the costs as discussed. This agrees to Table 35 line 24. Total operating expenditure includes circa £36.9M relating to PPP (AIR22 £31.6M).
- Line 22a: This figure has increased £0.7M from AIR22 and can vary from year to year depending upon volumes of water dispatched, changes in the volumetric charge, deductions incurred and indexation. See Table 42 commentary for details.

C Reactive & Planned Maintenance

- Line 23: Infrastructure, this figure has decreased by circa £0.9M from AIR22. This is explained in Line 4 above.
- Line 24: Non-infrastructure, this figure has increased by circa £2.2M from AIR22. This is as a result of the increased Pumping costs driven by the increase in Power costs.

Leakage costs

Operating costs relating to leakage have decreased by £0.5M AIR22 at £8.3M in AIR23. This is as a result of increased capitalisation of Leakage Detection costs (£0.3M) and lower than expected contract increases relating to wage and fuel costs. Capital expenditure has increased £0.1M from AIR22 to AIR23.

Table 22 – NI Water Total

A - Direct Costs

Total Expenditure in Table 22 has increased £18.2M from AIR22. This is mainly driven by an increase in Power £11.3M, an increase in Employment Costs £1.3M, an increase in PPP Unitary Charges £3.2M and various other variances which are explained on a line-by-line basis below:

- Line 1: Employment costs have increased by circa £1.3M from AIR22. This is due to the annual inflationary pay rise.
- Line 2: Power costs include electricity costs and fuel costs for power generation. Overall the costs have increased by £11.3M in AIR23 from AIR22. The reason for this is due to a large increase in energy tariffs.

In AIR23 the Wastewater Field Managers provided a percentage estimate of power costs between Sewage Treatment and Sludge Treatment at each of the WWTWs where there are both activities. These percentages were applied to the power costs to calculate the costs for each activity. This is the same rationale as AIR22.

There is one electricity meter at Duncrue Street which includes the costs for the Belfast WWTWs and the Incinerators which are operated by PPP. The power team supplied an estimated 44:56 split between the Belfast WWTWs and the Incinerators (based on an estimated KWhr usage and a number of sub-meters) which has been used to calculate the amount relating to Sewage Treatment at Belfast and Sludge Treatment at the Incinerators. In AIR22 the estimated split was 42:58.

Power costs include £9.7M for PPP (AIR22 £7.6M).

- Line 3: Agencies – there are no costs in this line.
- Line 4: Hired and Contracted services have increased £0.3M from AIR22. The increase is driven by higher Sludge Disposal costs due to factors such as haulage and wage costs affecting key suppliers.
- Line 5: Associated companies– there are no costs in this line.

- Line 6: Materials & Consumables have increased £0.1M from AIR22. The increase is driven by higher Material & Consumable costs due to factors such as energy costs & haulage costs. The main increase is in Chemicals where the production process can be heavily energy dependent.
- Line 7: Service Charges have increased £0.1M from AIR22. The increase is driven by NIEA Regulation and Consenting fees.
- Line 8: Other Direct Costs are immaterial.
- Line 9: Total Direct Costs – this is a calculated line and is the total of lines 1-8. AIR23 direct costs are £13.0M higher than AIR22. This is driven by the increase in Power and Hired and Contracted costs as detailed above.
- Line 10: General & Support expenditure has increased by circa £1.4M from AIR22 to AIR23. The reason for the increase in the costs in Table 22 is the increase in the overall General & Support expenditure (as already discussed) as well as the increase in the percentage allocation to Sewerage (as already discussed).

The percentages used are calculated on the total of Direct Costs for General & Support Pot 1 & 2 which increased from AIR22. Service Activities are mapped to the NIAUR service areas in **Appendix 2**. See the **Allocation of costs between service areas** section at the start of the commentary.

The NI Water Total costs include circa £0.3M for PPP (AIR22 £0.2M).

- Line 11: This is the calculated total line for Functional Expenditure which has increased by £14.4M. This increase is driven by the increase in Power, Hired and Contracted costs and General & Support Costs as discussed above. Line 11 includes costs of £10.0M associated with PPP (AIR22 £7.8M).

B - Operating Expenditure

- Line 12: Customer Services costs have increased £0.6M from AIR22 in Table 22. Customer Services costs are apportioned based on the percentage of direct costs from Table 21 & 22. In AIR23 the percentage split was calculated 52.4% Table 21 and 47.6% Table 22. In AIR22 the percentage split was 53.5% and 46.5% between Table 21 & 22 respectively.
- Line 13: Scientific Services costs have increased £0.2M from AIR22. Scientific Services costs have been split using the same percentage basis as Customer Services as detailed above in line 12.
- Line 14: Other Business Activities – Regulatory costs have decreased £0.2M from AIR22 as a result of lower Regulation consultancy costs. These costs have been apportioned on the same basis as line 12 and line 13.
- Line 15: Total Business Activities – this is a calculated line and is the total of Line 12, 13 and 14. This has increased £0.6M from AIR22 as detailed above.
- Line 16: Local authority rates are broadly in line with AIR22 and have increased £0.1M.
- Line 17: Doubtful debts have decreased by £0.2M from AIR22. The doubtful debts have split between Table 21 and Table 22 on a specific line by line basis, consistent with what was done in AIR22.
- Line 18: Exceptional items– there are no costs in this line.
- Line 19: Total Opex less third-party services – this is a calculated line and is the total of Line 11, 15, 16, 17 and 18. This has increased by £14.9M from AIR22.
- Line 20: Third party services are immaterial.
- Line 20a: Total PPP Unitary Charge has increased by circa £3.2M from AIR22. See Table 42 commentary for details.
- Line 21: Total operating expenditure, this is a calculated line and is the total of line 19, 20 and 20a. This line has increased by £18.2M from AIR22.

Total operating expenditure includes £24.4M of costs associated with PPP (AIR22 £18.9M).

- Line 21a: Payments to Operators for Sewerage Services has changed to reflect:
 - i) The variation in flows (and loads; in the case of Kinnegar) received from the NIW Catchment upon which the Contractor / Concessionaire and Operators revenue payments are based;
 - ii) Any non-performance issues encountered by either Operator under their own contract arrangements with the Contractor / Concessionaire.

The costs have increased by £1.0M to £13.1M in AIR23.

C - Reactive & Planned Maintenance

- Line 22: Infrastructure, this figure has decreased £0.1M from AIR22 to £2.6M. This is due to a decrease in Blockages.
- Line 23: Non-infrastructure, this figure has increased by circa £3.9M from AIR22 to £19.4M. This is due to an increase in Power costs relating to Pumping.

Reactive and planned maintenance

The overall approach and allocation process for Tables 21 and 22 has remained consistent with AIR22. However there still remain some limitations to the coding which means that some expenditure, for example building and ground maintenance, cannot be split separately.

Pensions

Pension costs per the actuarial information at 31st March 2023 were £22.0M (AIR22 £23.0M) which amounts to £21.4M before interest costs of £0.6M (AIR22 £21.8M before interest costs of £1.2M) and these were charged to the profit and loss account. This is made up of current service costs of £20.0M (AIR22 £20.0M) and past service costs of £Nil (AIR22 £0.6M). These costs have been included in general and support costs and employment costs in Tables 21 and 22 on the basis outlined in the cost allocation section above.

The total employer pension contributions for the year were £13.3M (AIR22 £12.3M (£12.3M normal employer contribution & £Nil additional employer contributions) including £Nil relating to payment of 2022/23 past service costs.

These costs have been included in general and support costs and employment costs in Tables 21 and 22. Pension costs for those employees who can be directly attributed to service or business activities will be mapped directly to these areas via the wages and salaries codes as outlined in the cost allocation methodology. Pension costs that relate to either employees not engaged directly on service/business activities or that relate to past service costs (i.e. VER provision) will be apportioned to activities in line with the treatment of general and support expenditure as detailed in the cost methodology.

Pension costs and finance charges associated with employees involved with unappointed activities have not been specifically excluded from pension figures within the profit and loss account. However as noted in the costing section above an estimate of the costs of

unappointed activities has been adjusted for during the costs allocation process and it has been assumed that an element of this allocation would cover pension costs.

The pension fund at 31st March 2023 has now gone into a surplus (asset) position compared to last year.

Further disclosures on pensions are contained in the statutory accounts which are based on the company's actuarial report at 31st March 2023.

Third party costs

Third party costs remain negligible in AIR23 and relate primarily to services recharged to third parties. The associated income is reported in Table 23 as third-party income.

Infrastructure Renewals Charge (IRC)

See Commentary for Table 33.

Appendix 1 – Expense group mapping

Expense Group	Desc	Table 21 & 22 mapping
511X	Industrial Wages	Employment
513X	Other Wage Costs	Employment
514X	Other Costs of Employment	Employment
515X	Salaries	Employment
516X	Non-Industrial Expenses	Employment
517X	Temporary Support Staff	Employment
611X	Cost Reallocations	Employment
612X	N/A	Employment
613X	N/A	Employment
614X	N/A	Employment
521X	Power	Power
531X	Operational Contractors	Hired and Contracted
532X	Other Contractors	Hired and Contracted
534X	Out sourcing	Hired and Contracted
538X	Consultants Fees	Hired and Contracted
541X	Materials and Equipment	Materials & consumables
544X	Non Operations Materials	Materials & consumables
547X	Stock Adjustments	Materials & consumables
548X	Chemicals	Materials & consumables
5562 & 5565	Environmental Regulator & Crown Estates	Service Charges
536X	Office and Computer Services	Other direct costs
537X	Legal and other professional fees	Other direct costs
551X	Accommodation	Other direct costs
553X	Insurance - Premiums	Other direct costs
553Y	Insurance - Claims	Other direct costs
554X	Public Liability	Other direct costs
555X	Employer's Liability	Other direct costs
616X	N/A	Other direct costs
695X	Management Task	Other direct costs
759X	Overheads Capitalised	Other direct costs
518X	Staff Training & Hospitality	General & support
533X	V&P repairs	General & support
539X	Audit	General & support
546X	Mobile V&P Charges	General & support
552X	Communication	General & support
556X	Other Grants and Subscriptions	General & support
557X	Advertising and Publicity	General & support
641X	Intra Departmental Notionals	General & support
651X	Inter Departmental Notionals	General & support
772X	Bad Debts	Doubtful debts
775X	Discount Allowed	Customer services
558X	Rates	Rates
5561	Regulatory Costs	Other Business Activities
534Y	PPP	PPP unitary charge

Appendix 2 – Service activity mapping

NIW Service Activity	Service Activity description	Table 21/22 Mapping
310	Pumping (Inc Highlift at WTW)	Water - Distribution
311	Service Resv Wat Tower Tanks	
312	Service Resv cleaning	
313	Distribution and Water Operations	
320	Repair and Maintenance (Mains Repair)	
321	Repair and Maintenance (Service Repair)	
322	Repair and Maintenance (Hydrant & Valve Repairs)	
323	R&M (NIFRS Hydrant & Valve Repairs)	
324	Repair and Maintenance (Mains Cleansing)	
326	Repair and Maintenance (Lead Replacement)	
331	Repair and Maintenance of 'Street Furniture' (Water)	
340	Leakage - Monitoring	
341	Leakage - Detection	
342	Hydrant & Valve Repairs as identified by	
343	Service Repairs as identified by active	
344	Mains Repairs as identified by active Le	
351	Consumer Meter Repair & Maintenance	
360	Investigations	
362	Customer Contacts excluding meter query	
363	Regulatory Plumbing Inspection	
380	'In House' Investigations and Attendance	
385	Health & Safety - Networks	
391	Networks Function Activity -Query	
399	Networks Stores	
920	Connection (Water)	
110	Impounding Reservoir	Water - Resource & Treatment
111	Loughs	
112	River Intakes	
113	Boreholes,Springs & Wells	
120	Repairs & Maint A/duct/Main	
140	Recreation & Amenity	
150	Water Treatment	
151	Water Sludge Treatment	
152	Water Sludge Disposal	
185	Health & Safety - Supply	
190	Supply Function Activity	
191	Supply Function Activity - Query	
822	Instrumental Control Activity M & E Water Supply	
410	Repair & Maintenance of Sewers	Sewerage - Sewerage
411	Blockage	
412	Desilting	
413	Inspection of Sewers	
414	Repair and Maintenance of 'Street Furniture' (Sewerage)	
415	Sewerage Tankering	
430	Pumping (Foul & Combined)	
431	Pumping (Surface Water)	
460	'In House' Investigations and Attendance	
462	Rodent Control	
940	Rechargeable (Sewerage)	
950	Connection (Sewerage)	
510	Sewage Treatment	Sewerage - Sewage Treatment
591	Waste Water Function Activity - Query	
620	Sludge Treatment - Tankering Between Works	Sewerage - Sludge Treatment
621	Sludge Treatment	
630	Sludge Disposal to Agricultural Land Transportation	
631	Instrumental Control Activity M & E WasteWater	
632	Sludge Cake Transportation to Landfill	
633	Sludge Cake Disposal to Landfill	
635	Sludge Logger Maintenance (Contract)	
636	Incinerator Sludge Treatment	
637	Sludge Disposal Tankering from Strategic Collection Centres to Dewatering Centres	
638	Sludge Cake Disposal to Incinerator	
639	Incinerator Ash Disposal to Landfill	
640	Private Septic Tank Desludging	Customer Services
710	General	
711	Customer Services (Meter Read & Customer Queries)	
712	Disconnection / Reconnection	
714	Consumer Meters Repair And Maintenance	
790	Customer Services Function Activity	
730	Water Analysis	Scientific Services
731	Sewerage General	
732	Labs Water & Sewerage General	
733	Sampling	
734	Labs Sewage Sampling	
003	Rates DRC - Water	Rates
013	Rates DRC - Sewerage	
910	Rechargeable Work	Third Party Opex
000	Default	Overhead Pot 1 - General
021	GAE	
023	Invest to Save Revenue	
810	Vehicle & Plant Maintenance	
811	Vehicle & Plant Accident Repair	
812	Garage Overheads	
813	Roads Service	
820	Telemetry	
890	TMG Function Activity	
050	Ops & Maint General (Water)	
055	Ops & Maint General (Sewerage)	Overhead Pot 2 - Sewerage
585	Health & Safety - WW	
590	Waste Water Function Activity	
735	Trade Effluent	
821	Radio & Monitoring Wastewater	
390	Networks Function Activity	

Table 23 – Analysis of turnover and operating income

Working Capital Adjustment

The commentary to Table 27 outlines the methodology for the Working Capital Adjustment.

Monthly Non-domestic Income Monitoring Process

The process for monitoring income is laid out in the flow diagram in Appendix A.

By 3.00pm on the third working day (Day 3) of each month, NI Water's billing partner, Echo Managed Services Ltd (Echo), e-mails to NI Water a spreadsheet which includes details of summary billed income, accrued income, cash, bad debt write-off and debtor information, as well as the general ledger postings for the month. In addition, the following reports are provided at that time:

- Bank reconciliation;
- Aged debt analysis;
- Listing of all refunds;
- Listing of all transactions;
- Accrued income details;
- Cash received listing;
- List of returned payments.

Billed income comes in the form of both invoices (first-time round billing, arising from a meter reading or an estimate) and system adjustments (adjustments made to a previously invoiced bill). The transaction listing, mentioned above, is reviewed by both Finance, Regulation and Commercial (FRC) and Billing & Revenue (B&R) to analyse the system adjustments made in the month and to understand better any budget/forecast variances in the month.

During Working Day 3 and Day 4, NI Water carries out the general ledger postings on to Oracle and then assesses and posts the following:

- The amount of income on "N-stop" i.e. invoices held back for a variety of reasons, to be recognised in the accounts;
- Any adjustments to the accrued income (see Appendix H); and
- The amount of provision to be made against the accrued income (based on those items of accrued income greater than c250 days old).

A draft income summary is prepared on the morning of Working Day 4, showing income to date across the five income categories (measured water, measured sewerage, unmeasured water, unmeasured sewerage and trade effluent) for both the month and the year to date, together with comparative figures for the budget and/or the latest forecast. An e-mail is then sent out showing the summary table and giving a short explanation of the income and debtors in the month; this e-mail provides the basis for explanation at the following day's (Day 5) Monthly Accounts meeting held with the Director of FRC.

An initial meeting between FRC and B&R is held on the afternoon of Working Day 4 to discuss the narrative in the e-mail and discuss further any budget/forecast variances in the month.

On Working Day 5, Echo finalises the Day 5 data, saving this on to an NI Water Public folder drive. This contains a number of detailed spreadsheets, such as VAT reports and suspense account (see Appendix B).

A short e-mail commentary on the total NI Water income for the month is prepared for the Board, once the Day 5 Accounts meeting has taken place. In addition, an email is sent out (on Day 6 or Day 7) confirming the final income, copying in the Director of FRC and the Director of C&OD.

Movements in Income against PC21

Following on from the monitoring process detailed above, the 2022/23 year-end position of income against PC21 submission was as follows:

Income	Actual Income 2022/23 £m	PC21 Income 2022/23 £m	Variance £m
Subsidy:			
Domestic phasing subsidy - water	142.4	142.0	0.4
Domestic phasing subsidy - sewerage	179.0	177.5	1.5
Non-domestic phasing subsidy - water	1.3	1.1	0.2
Non-domestic phasing subsidy - sewerage	1.6	1.2	0.4
Domestic allowance - water	10.7	11.1	(0.4)
Domestic allowance - sewerage	6.8	7.1	(0.3)
Septic tank subsidy	3.7		3.7
Total subsidy	345.5	340.0	5.5
Non-domestic income:			
Measured water	46.4	43.8	2.6
Measured sewerage	27.8	26.2	1.6
Unmeasured water	1.4	1.1	0.3
Unmeasured sewerage	1.7	1.2	0.5
Trade effluent	9.4	9.5	(0.1)
Total non domestic income	86.7	81.8	4.9
Road drainage income	25.2	25.2	0.0
Other regulated income	1.9	2.4	(0.5)
IFRIC18 income	12.5		12.5
Deferred credit amortisation	4.1		4.1
Electricity Generation	1.8		1.8
Other non-regulated income	2.0		2.0
TOTAL INCOME	479.7	449.4	30.3

The above table includes both appointed and un-appointed income.

Specific reasons for the £30.3m increase over PC21 are:

- The increase in domestic phasing subsidy represents an increased tariff.

- Septic tank subsidy is not included within the PC21 submission.
- With measured water:
 - There was an increased tariff used, compared to what was in the PC21 FD, a c£2.1 increase.
- Measured sewerage:
 - There was an increased tariff used, compared to what was in the PC21 FD, a c£1.3 increase.
- For unmeasured income, there was a large increase in income, reflecting both increased customers numbers (a lot as a result of the Metering and Billing project).
- For trade effluent, income was largely as expected.
- Other income in the PC21 Final Determination submission only contains regulated income, and excludes income from the likes of vehicle maintenance, rental of aerial sites and sales of Renewable Obligation Certificates (ROCs), as well as IFRIC18 income and deferred credit amortisation.

Movements in Income against budget

Following on from the monitoring process detailed above, the 2022/23 year-end position of income against budget was as follows:

Income	Actual Income 2022/23 £m	Budget Income 2022/23 £m	Variance £m
Subsidy:			
Domestic phasing subsidy - water	142.4	142.4	0.0
Domestic phasing subsidy - sewerage	179.0	179.0	0.0
Non-domestic phasing subsidy - water	1.3	1.3	0.0
Non-domestic phasing subsidy - sewerage	1.6	1.6	0.0
Domestic allowance - water	10.7	11.1	(0.4)
Domestic allowance - sewerage	6.8	7.1	(0.3)
Septic tank subsidy	3.7	3.6	0.1
Total subsidy	345.5	346.1	(0.6)
Non-domestic income:			
Measured water	46.4	43.8	2.6
Measured sewerage	27.8	26.2	1.6
Unmeasured water	1.4	1.2	0.2
Unmeasured sewerage	1.7	1.5	0.2
Trade effluent	9.4	9.7	(0.3)
Total non domestic income	86.7	82.4	4.3
Road drainage income	25.2	25.2	0.0
Other	22.3	5.5	16.8
TOTAL INCOME	479.7	459.2	20.5

The above table includes both appointed and un-appointed income.

Specific reasons for the £20.5m increase against budget are:

- With measured water non-domestic income:
 - There was a lot of economic uncertainty when the 2022/23 income budget was agreed. While the world was just emerging following the pandemic and Russia had yet to invade Ukraine, energy prices had started to rise. As such, the budget was set at a conservative level, anticipating that water consumption would return to pre-pandemic levels by Q4 of 2022/23. large increase in agricultural income, c£2.0m.
 - In reality, consumption returned to “normal” levels or above far sooner than expected, even in areas like hospitality.

- Agricultural income accounts for about a third of measured water income, and consumption was generally above pre-pandemic levels, possibly due to a lot of dry weather during the year and, at times, a very hot summer.
 - Consumption in public sector businesses (e.g. hospitals, council owned leisure facilities, schools and colleges) was not as low as budgeted; hospitals were busy, students continued to attend schools and universities and leisure centres remained open.
 - Manufacturing remained at constant levels throughout the year, and did not appear to suffer any consumption reductions from the economic difficulties.
 - The budget assumed that hospitality would rise from 90% in Q1 to c95% in Q4; however, hospitality was mostly at or above “normal” levels, possibly due to “pent-up demand” and also helped by a strong Christmas.
- Measured sewerage:
 - MS did not benefit from the increases mentioned above for agriculture (most agricultural customer do not use the sewerage network) and the monthly manufacturing customers (a number who are mostly trade effluent).
 - Therefore, MS has been impacted more by the higher than expected consumption for public sector businesses and the hospitality sector.
 - Measured sewerage benefitted from a £0.6m back-billing for a third borehole (hence, measured sewerage only) discovered at [REDACTED] during the year.
- For unmeasured income, there was a large increase in income, reflecting both increased customers numbers (a lot as a result of the Metering and Billing project) and the economic difficulties for small businesses arising not being as bad as feared.
- For trade effluent income, there has been:
 - The 2022/23 budget reflected the 2021/22 increased income for new billing for [REDACTED] which was not replicated in the actual income for 2022/23.
- For other income, there has been:
 - IFRIC18 income (£12.5m) and deferred credit amortisation income (£4.1m), there were no budget figures available.
 - Sundry income was £5.7m for the 2022/23 year, against a budget of £5.5m, largely due to increases in various areas of Developer Services, especially wastewater impact assessments (£0.2m).

Movements in Income between 2022/23 and 2021/22

The table below details the income for the year ended 31 March, for both 2023 and 2022:

Income	Actual Income 2022/23 £m	Actual Income 2021/22 £m	Variance £m
Subsidy:			
Domestic phasing subsidy - water	142.4	130.3	12.1
Domestic phasing subsidy - sewerage	179.0	165.7	13.3
Non-domestic phasing subsidy - water	1.3	1.0	0.3
Non-domestic phasing subsidy - sewerage	1.6	1.2	0.4
Domestic allowance - water	10.7	10.4	0.3
Domestic allowance - sewerage	6.8	6.7	0.1
Septic tank subsidy	3.7	3.4	0.3
Total subsidy	345.5	318.7	26.8
Non-domestic income:			
Measured water	46.4	42.1	4.3
Measured sewerage	27.8	23.0	4.8
Unmeasured water	1.4	1.4	0.0
Unmeasured sewerage	1.7	1.6	0.1
Trade effluent	9.4	8.7	0.7
Total non domestic income	86.7	76.8	9.9
Road drainage income	25.2	23.2	2.0
Other	22.3	22.8	(0.5)
TOTAL INCOME	479.7	441.5	38.2

The above table includes both appointed and un-appointed income.

The income has increased by £38.2m, due to:

- An increase in the subsidy for domestic properties of £26.8m, which reflects the second year of the PC21 Final Determination.
- For measured water, there was a c5% tariff increase, equivalent to around £2.2m. Furthermore:
 - Agricultural income was similar to the high consumption in 2021/22, with both years having very hot summer spells.
 - Following the opening up of the economy after the lockdown, several businesses had increased consumption in 2021/22:
 - The hospitality increased by c£0.8m, with hotels and restaurants having increased consumption, following on from the pandemic e.g. [REDACTED]
 - Other services like schools, gyms and hospitals increased by c£1.2m, again following on from the lockdown e.g. [REDACTED]

- For measured sewerage, there was a 6.2% tariff increase, equivalent to around £1.4m. Again, as in the analysis against budget, the big movements against the previous year were:
 - Similar to MW:
 - The hospitality increased by c£1.1m, with hotels and restaurants having increased consumption e.g. [REDACTED].
 - Other services like schools, gyms and hospitals increased by c£1.3m, again following on from the lockdown e.g. [REDACTED].
 - During 2022/23, an additional borehole was discovered at [REDACTED] leading to back-billing of [REDACTED].
- Unmeasured income, was largely similar to 2021/22, with the difficult economic conditions not having a noticeable effect.
- For trade effluent income, there has been:
 - Tariff increase of roughly £0.7m.
 - Again, increases (£0.2m) arising from coming out of the lockdown e.g. [REDACTED].
 - In 2021/22, a new customer back-billed for additional income from [REDACTED].
- For other income, there has been:
 - Increases in Developer income (£0.4m), due to higher impact assessments fees received, both water and wastewater.
 - In addition, there was reduced laboratory income (21/22 included income for the recovery of COVID related costs), but higher electricity income from the sale of ROCs.

Reconciliation of Billed Income to Income in the Accounts

The tables below detail, for both measured/unmeasured income and for trade effluent, how the income billed reconciles to the income reported at 31 March 2023:

Measured and unmeasured income					
				£m	
Billed income				75.6	
Movement in accrued income				1.9	
2023/24 unmeasured billing deferred				0.0	
Movement in referred bills				(0.2)	
Provisions released					
Total income per accounts				<u>77.3</u>	
Accrued income at 31 March 2023 represented 20% (2022: 19%) of annual billed income.					
Trade effluent					
				£m	
Billed income				9.2	
Movement in accrued income				0.2	
Total income per accounts				<u>9.4</u>	
Accrued income at 31 March 2023 represented 11% (2022: 9%) of annual billed income.					

The two tables above show the total income per accounts prior to the classification in the accounts of elements of total income to large user revenue.

Of the adjustments detailed above, the following adjustments may recur in future years:

- Movement in accrued income – there will always be a small variance over a period of a year.
- 2023/24 unmeasured billing deferred – the annual unmeasured billing will always be deferred, assuming that the invoicing is done in March. However, for 2023/24, the billing was done until April 2023, to allow some customers the benefits arising from a reduced Net Asset Value, following on from the 2023 Rates Valuation carried out by Land & Property Services.
- Movement in referred bills – there will always be a small variance over a period of a year.
-

Reconciliations and Controls carried out

A number of reconciliations are carried out on Echo's income information:

- The Day 3 income information received from Echo is reconciled back to what has been entered on Oracle (see Appendix C). This reconciliation is signed off monthly by both Management Accounts (MA) and Financial Accounts (FA) within FRC.
- The debtor account in the balance sheet is reconciled each month and signed off by MA and FA (see Appendix D).
- The accrued income account is reconciled monthly (see Appendix E).
- The number of meters to be billed is reconciled to what has actually been billed (see Appendix F).
- The items in the monthly Transaction Report are reconciled back to the GL posting within the Day 3 report (see Appendix G).

- The billed income for monthly customers and for the relevant six-monthly customers is compared to what was accrued in the previous month, on a meter-by-meter basis.
- An income sheet, listing various checks on the Day 3 report, is adhered to (see Appendix J).
- As each customer is assigned a VAT SIC code. to understand better the impact that the lockdown caused by the COVID-19 pandemic was having on both income and cash collection, two new reports were introduced:
 - Year on Year cash analysis by VAT SIC Code (YTD and In-Month);
 - Year on Year In-Month average daily consumption (adc) by meter (which is then grouped by SIC Code).

In addition, Echo carry out controls on meter readings, such that a bill is “held” and not sent out to the customer if its value has exceeded a certain level, known as the “bill ceiling”.

Review by Internal Audit

There were no internal audit reviews carried out in 2022/23 on income reporting.

Balance Sheet Nominal Ledger Accounts

The table below gives details of the relevant balance sheet accounts as at 31 March 2023, together with a comparison to the balances as at 31 March 2022:

	Balance 2022/23 £m	Balance 2021/22 £m	Variance £m
Debtors	7.8	10.8	(3.0)
Bad debt provision	(3.1)	(3.4)	0.3

Within the £3.0m fall in debtors there was:

- The annual unmeasured billing run is normally undertaken each March; however, unmeasured billing for 2023/24 was not carried out until April 2023, to allow some customers to benefit from a reduced Net Asset Value, following on from the 2023 Rates Valuation carried out by Land & Property Services.

There was a £0.3m reduction in the bad debts provision, reflecting the improved debtor position (e.g. reduced aged debt) as at 31st March 2023.

Accrued Income

There are two reports which Echo uses for accrued income, both in the form of Excel spreadsheets included within the Day 3 data: the E040 Accrual Detail report (formerly called the Dynamic Consumption Report (DCR)), and a separate report for Trade Effluent, which is an excel spreadsheet model.

Measured customers are billed either every month (mainly larger customers) or every six months, in arrears, and income needs to be accrued for them for a period of up to six months. Therefore, there are seven “bill frequency” periods:

- Monthly
- Jan/Jul six monthly

- Feb/Aug six monthly
- Mar/Sep six monthly
- Apr/Oct six monthly
- May/Nov six monthly
- Jun/Dec six monthly

The E040 report takes information directly from the RAPID system and is based on the latest reading date (as opposed to billing date) and the average consumption of previous bills. If estimated readings have been made, these are used in the calculation. If there is not the necessary information available, the report will use the industry average consumption (for the industry sector which the customer has been assigned to). Any system adjustments made to the original bill meter reading will automatically over-ride the original bill, and it will be system adjustment readings that are used for the calculation of the accrual.

Accruals for trade effluent income are based on an excel spreadsheet model built by Echo. This takes billing data from 1 April of the previous year i.e. close to 2 years of data when March accrual is being calculated, and a year is shut down at the start of April each year. The model contains a price tariff percentage to either increase or decrease the accrual, depending on the percentage uplift/reduction in prices from the previous year. The model designates customers as monthly or six-monthly but does not break six-monthly down into the relevant month in which the six monthly bills are issued.

Echo performs a high-level reconciliation each month, looking for any major differences in the month from the previous month.

Each month, the E040 report is reviewed by B&R for any unusual items, and an adjustment made for those (see March 2023 adjustments in Appendix H).

The accrued income in the last two years has been:

	Accrued Income 2022/23 £m	Accrued Income 2021/22 £m	Variance £m
Accrued income:			
Measured water and sewerage	11.6	9.7	1.9
Trade effluent	1.0	0.8	0.2
TOTAL ACCRUED INCOME	12.6	10.5	2.1

The rise of £2.1m against the previous year can be explained as follows:

- There was a £1.9m increase in MW (£1.0m) and MS (£0.9m), reflecting the increased consumption across businesses in the country, following on from the COVID restrictions during 2020/21 and 2021/22, as well as the increased tariffs for the 2022/23 year.

Subsidy Income

In 2022/23, NI Water had total subsidy income of £345.5m. This was broken down as follows:

- £321.4m for domestic phasing subsidy for water and sewerage, in lieu of domestic charges.

- £2.9m for non-domestic phasing subsidy, representing 50% of unmeasured non-domestic income.
- £17.5m for domestic allowance subsidy, representing the domestic allowance claimed by customers for both water and sewerage (restricted to 200m³ of water per year, for each building on which the customer pays business rates).
- £3.7m for septic tank subsidy. NI Water receives subsidy income for all septic tanks that it empties, except for those customers who receive a charge if they have more than one empty in a 12-month period.

Road Drainage Income

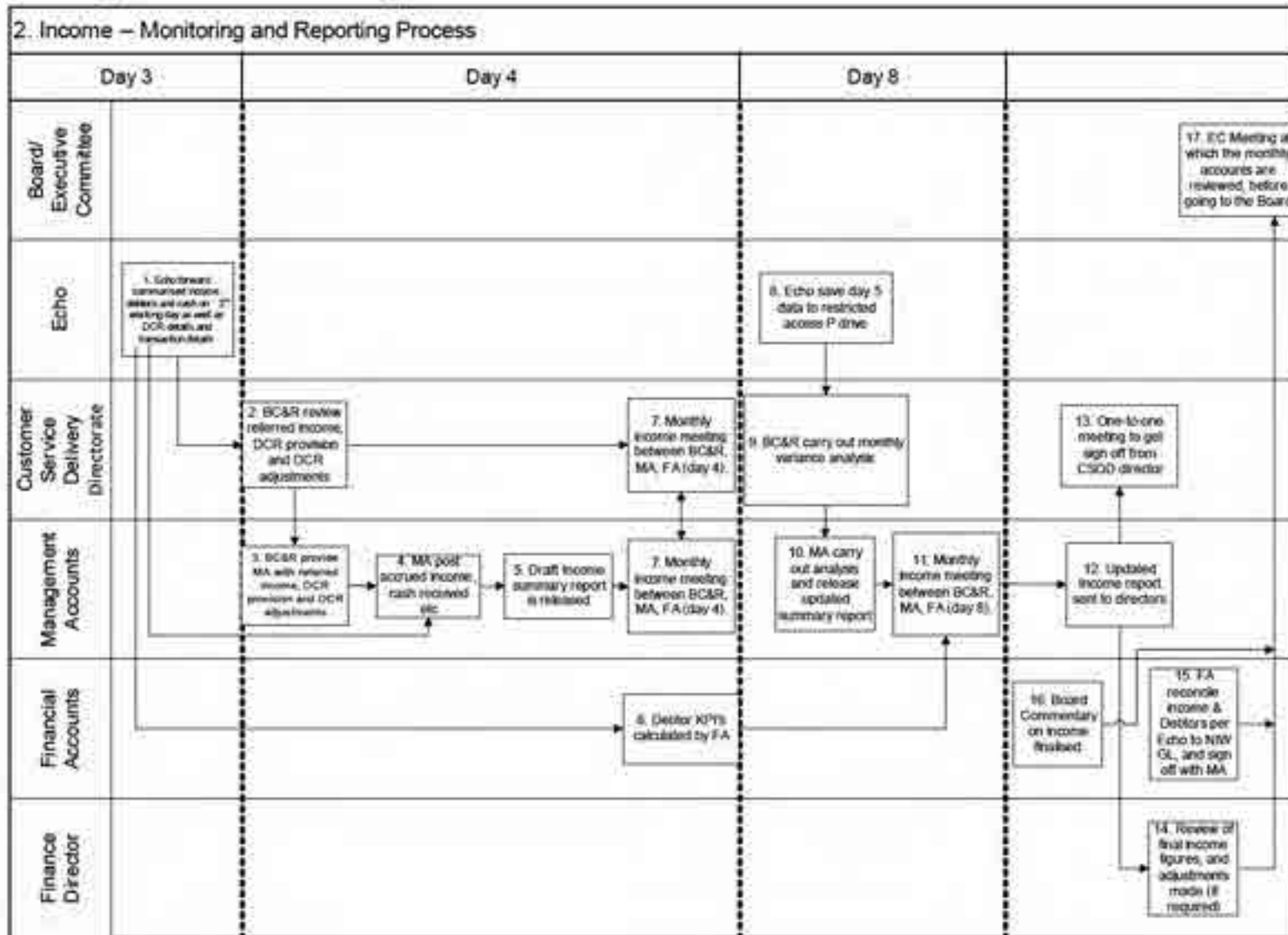
The road drainage charge for 2022/23 was based on the projections of NI Water's costs of operation (see the table below). The basis for the calculation has been approved by both the Regulator and by the Department for Infrastructure (DfI). A total of £25.2m was invoiced in 2022/23 to DfI, compared to £23.2m in 2021/22. A more detailed breakdown of the assumptions behind the calculation is provided in Appendix I.

	Combined	Storm Water	Total
Split of sewers for run off from roads and footpaths	50.35%	49.65%	100%
Total volume of Water (cubic metres)	32,325,198	31,874,802	64,200,000
Mogden Formula element	R+V	R	
Cost of Element: 22/23 tariff:	£0.5336 / m ³	£0.2508 / m ³	
Cost of Run off	£17,248,728	£7,994,200	£25,242,926

Non-tariff Basket Income

There is no net income movement out of the tariff basket for either water or sewerage.

Appendix A - Monthly Process for Monitoring Income



Appendix B – Day 3 & Day 5 Data received from Echo

Along with the actual summary Day 3 report, Echo also send:

- Bank reconciliation as at the end of the month;
- Aged debt reports as at the end of the month, by SIC code, industry code, etc.;
- An accrued income report, by meter reference, as at the end of the month.
- List of all income-related transactions in the month;
- List of refunds for the month;
- List of returned payments for the month;
- List of all cash payments, aged, for the month; and
- List of accounts on “n-stop”, as at the end of the month.

On Day 5, Echo send:

- VAT reports for the month;
- Consumption reports; and
- List of cash received transactions in the suspense account, as at the end of the month.

Appendix D – Reconciliation of Debtors account on Oracle

NORTHERN IRELAND WATER LIMITED AS AT 31 MARCH 2023	
Summary of Debtors	
Water & Sewerage Debtors GL code 1210	
	Mar-23
Opening Balance	£10,547,837.43
Take on Bills/New Bills- TOTAL	£4,595,313.07
Take on Bills/New Bills- Sewerage	1,570,227.82
Take on Bills/New Bills- Water	2,880,390.10
Take on Bills/New Bills- VAT	144,695.15
Annual Billing	0.00
Annual Billing - VAT	0.00
Discounts	0.00
System Adjustments- Total	£1,681,046.41
System Adjustments- Sewerage	550,902.56
System Adjustments- Water	1,034,795.39
System Adjustments- VAT	95,348.46
Manual Adjustments- Total	-£99,301.90
Manual Adjustments- Sewerage	(77,076.39)
Manual Adjustments- Water	(22,106.34)
Manual Adjustments- VAT	(119.17)
Write Off Adjustments Total	£0.00
Write Off Adjustments- Sewerage	0.00
Write Off Adjustments- Water	0.00
Write Off Adjustments- VAT	0.00
NIWS Bad Debt Authorised Write Off- Total	-£98,653.28
NIWS Authorised Write Off- Sewerage	(32,628.55)
NIWS Authorised Write Off- Water	(64,448.60)
NIWS Authorised Write Off- VAT	(1,576.13)
Net Cash	(8,010,157.64)
Refunds	69,501.02
Water & Sewerage GL code 1210 Closing Balance	£8,685,585.11
Check	
Metered & Unmetered Water & Sewerage Debtors	£8,685,585.11
(As per Echo)	
Per Tb GL code 1210	6,452,834.61
Variance	£2,232,750.50
Due to	
Variance (Oct = w/off Income 0708 in Oct08)	
Referred Bills NOT Recognised NET	(382,455.00)
Write-off of mixed supply debt > 3 years	(300,000.00)
System Adjustment Reduction	(1,550,000.00)
Various MS Adjustments	
Unknown	-£295.50
Trade Effluent Debtors GL code 1213	
Opening Balance	£1,614,358.68
Take on Bills/New Bills	651,356.58
Referred Bills	
Annual Billing	
System Adjustments	-£51.05
Manual Adjustments	£0.00
Write Off Adjustments	
NIWS Authorised Bad Debt Write Off	£0.00
Net Cash	-£893,341.68
Refunds	£0.00
Trade Effluent GL code 1213 Closing Balance	£1,372,322.53
Variance	-£14.05
Per Trial Balance general ledger code 1213	£1,372,336.58
Due to	
Trade Effluent	
Referred Bills	
Total Opening Balance GL code 1213 & 1210	
	£12,162,196.11
Take on Bills/New Bills	£5,246,669.65
Annual Billing	£0.00
Discounts	£0.00
System Adjustments	£1,680,995.36
Manual Adjustments	-£99,301.90
Write Off Adjustments	£0.00
NIWS Authorised Bad Debt Write Off	-£98,653.28
Net Cash	-£8,903,499.32
Refunds	£69,501.02
Total Closing Balance GL code 1213 & 1210	£10,057,907.64
Balance as per FN012 Summary	£10,057,460.54
Difference	£447.10
Echo Debtor Ledger	
	£10,017,586.12
Balance as per FN012 Summary	£10,057,460.54
Suspense Ac FN012 Summary	£122,842.76
Difference	-£162,717.18

E – Reconciliation of Accrued Income Account

<u>NIW Accrued Income</u>	
	Mar-23
Per Echo	
Measured Water	9,410
Measured Sewerage	5,973
Trade Effluent	1,035
Accrued income	16,417
<u>Accrued income adjustments</u>	
Test Meter (net accrued income)	
Voids not billed in unmeasured	
Additional TE Accrual re [REDACTED]	
DCR Provision	-337
DCR Further	-500
Accrued Income provision	-232
Increase in provision	-60
Industry average adj	-63
Income prov adj	-55
Future System Adjustments	-620
BackBilled Income Provision	-700
M&B Provision	-170
Void back-billing	-70
[REDACTED]	0
COVID-19	-1,000
Accrued income posted	12,610
Per TB (1420/1423)	12,610
Difference	0
Miscellaneous accrued Income	115
Interest Received Accrual	0
Total Accrued Income	12,724
Signed: [REDACTED]	
<u>TB Check</u>	
1420 - Metered Water Accrued Income	11,609,087.90
1423 - Trade Effluent Accrued Income	1,000,433.69
1426 - Miscellaneous Accrued Income	114,915.90
1451 - Interest Received Accrual	0.00
	12,724,437.49

Appendix F – Reconciliation of Meters

2022/23 - Meter Reconciliation Analysis												
	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Meters to be read												
Estimated	213	184	107	121	93	97	119	367	100	146	133	101
No Read	634	593	425	409	475	568	642	740	529	423	484	722
Read	13,227	12,730	10,873	11,564	12,754	12,342	13,332	12,365	10,810	11,620	12,738	12,379
Total Meters	14,074	13,507	11,405	12,094	13,322	13,007	14,093	13,472	11,439	12,189	13,355	13,202
No Reads to be investigated - Code Red	34	25	6	1	5	6	36	14	4	2	4	2
Meters to be billed												
Billable Meters	13,450	12,142	10,962	11,646	12,824	12,416	13,468	12,706	10,896	11,730	12,843	12,456
Non-Billable Meters	624	1,365	443	448	498	591	625	766	543	459	512	746
Total Meters	14,074	13,507	11,405	12,094	13,322	13,007	14,093	13,472	11,439	12,189	13,355	13,202
Total Meters Billed	13,296	11,999	10,857	11,516	12,685	12,304	13,303	12,574	10,795	11,597	12,701	12,343
Meters to be investigated	154	143	105	130	139	112	165	132	101	133	142	113
Billable Meters	13,450	12,142	10,962	11,646	12,824	12,416	13,468	12,706	10,896	11,730	12,843	12,456
Meters to be investigated - Code Red	50	33	12	11	14	13	58	18	9	8	13	6

Appendix G – Reconciliation of invoices and system adjustments as at 31 March 2023

	Trans Rpt	GL Posting	Variance
Measured Water	3,895,316	3,895,316	(0)
Measured Sewerage	2,043,525	2,043,525	0
Unmeasured Water	(113)	(113)	(0)
Unmeasured Sewerage	(1,594)	(1,594)	0
TE	651,306	651,306	0
Sub-total	6,588,439	6,588,439	(0)
Discount		0	0
VAT	239,924	239,924	0
TOTAL	6,828,363	6,828,363	(0)

Appendix H – Accrued Income Adjustments at 31 March 2023

Customer Ref	Meter Ref	Customer / Company Name	Read Frequency	Accrual Days	Read History	Water volume	Water volume per day	Sewerage Volume	Sewerage volume per day	Water Standing Charges	Water Volume Charges	Total Water Charges	Sewerage Standing Charges	Sewerage Volume Charges	Total Sewerage Charges	Total accrual standing charges	Total accrual volume charges	Total Accrual
10018176	292937		Six Monthly Apr/Oct	169	READ NG	30,251	179	28,738	179	£106	£34,941	£35,047	£129	£56,115	£56,244	£235	£91,056	£91,291
10018176	292937		Six Monthly Apr/Oct	169	READ NG	1,024	5	963	5	£106	(£1,371)	(£1,377)	£129	(£1,881)	(£2,010)	£235	(£1,052)	(£1,287)
											Variance	(£3,770)		Variance	(£4,214)		Variance	(£8,004)
49798	761262		Monthly	35	READ NG	40,413	1,155	40,413	1,155	£178	£45,807	£45,985	£214	£37,508	£37,821	£392	£83,414	£83,806
49798	761262		Monthly	35	READ NG	31,250	890	31,508	890	£178	(£7,688)	(£7,866)	£214	(£7,395)	(£8,098)	£392	(£67,281)	(£67,474)
											Variance	(£8,119)		Variance	(£8,213)		Variance	(£16,332)
37145	300256		Six Monthly May/Nov	144	READ NG	11,273	78	10,709	78	£514	£13,223	£13,738	£617	£21,236	£21,853	£1,132	£34,459	£35,591
37145	300256		Six Monthly May/Nov	144	READ NG	720	5	684	5	£514	(£845)	(£1,859)	£617	(£1,358)	(£1,914)	£1,132	(£1,301)	(£1,313)
											Variance	(£12,379)		Variance	(£19,880)		Variance	(£12,258)
2079291	1062683		Six Monthly May/Nov	141	READ NG	10,007	71	9,507	71	£28	£11,730	£11,758	£35	£18,839	£18,873	£63	£30,569	£30,631
2079291	1062683		Six Monthly May/Nov	141	READ NG	141	1	134	1	£28	(£165)	(£187)	£35	(£75)	(£100)	£63	(£11)	(£84)
											Variance	(£11,563)		Variance	(£18,573)		Variance	(£9,138)
8809446	1247756		Six Monthly Feb/Aug	46	READ NG	4,647	101	4,415	101	£164	£5,422	£5,586	£197	£8,707	£8,905	£362	£14,129	£14,491
8809446	1247756		Six Monthly Feb/Aug	46	READ NG	2,790	60	2,622	60	£164	(£1,220)	(£1,384)	£197	(£1,171)	(£1,368)	£362	(£1,351)	(£1,753)
											Variance	(£2,202)		Variance	(£3,536)		Variance	(£5,738)
167722	25174		Six Monthly Apr/Oct	158	IND AVE	4,154	26	3,899	26	£32	£4,712	£4,744	£39	£7,569	£7,608	£71	£12,281	£12,352
167722	25174		Six Monthly Apr/Oct	158	IND AVE	138	1	130	1	£32	(£181)	(£223)	£39	(£75)	(£130)	£71	(£17)	(£41)
											Variance	(£4,531)		Variance	(£7,276)		Variance	(£11,808)
10026664	1419306		Six Monthly Apr/Oct	99	IND AVE	3,313	33	3,147	33	£98	£3,886	£3,984	£119	£6,241	£6,359	£216	£10,127	£10,343
10026664	1419306		Six Monthly Apr/Oct	99	IND AVE	990	10	941	10	£98	(£1,181)	(£1,259)	£119	(£1,385)	(£1,464)	£216	(£1,020)	(£1,241)
											Variance	(£2,725)		Variance	(£4,375)		Variance	(£7,100)
65709	325507		Six Monthly Feb/Aug	45	READ NG	3,068	68	2,915	68	£161	£3,569	£3,730	£193	£5,735	£5,928	£254	£9,304	£9,558
65709	325507		Six Monthly Feb/Aug	45	READ NG	45	1	43	1	£161	(£52)	(£71)	£193	(£84)	(£277)	£254	(£138)	(£190)
											Variance	(£3,517)		Variance	(£5,651)		Variance	(£9,188)

Appendix I – Calculation of Road Drainage Charges

The calculation of Road Drainage charges was prepared on the following basis:

- i The total urban road and footway surface area was obtained (Source Roads Service),
 - a. Urban road surface area = 39.3million m²
 - b. Urban footway surface area = 17.0million m²
 - c. Total Urban road & footway surface area = 56.3million m²
- ii The average annual rainfall in Northern Ireland over the last 10 years was obtained (Source: Met Office).
Average annual rainfall = 1.14m
- iii The average volume of rain and therefore the run-off from roads and footpaths discharged into NIW sewers and storm drains was calculated as follows:
 $56.3\text{million m}^2 \times 1.14\text{m} = 64.2\text{million m}^3$

NIW's network information management system (NIMS) indicated that for the largest 105 urban areas in N Ireland the length of combined sewers and the length of storm water sewers was split as detailed in the following table. These figures were adjusted to allow for those storm water sewers which rather than discharging into a watercourse were connected into the combined system.

	Km	% of total
Combined sewers	4,378	50.35%
Storm water sewers	4,317	49.65%
Total	8,695	100.00%

The unit costs of R & V applied were obtained using the Trade Effluent Mogden Formula as per the table below:

Mogden Formula element	21/22 tariff (£) Per m ³	22/23 tariff (£) Per m ³	Application
R (Reception)	0.2310	0.2508	Run off into Storm water sewers
V (Volumetric)	0.2605	0.2828	Run off into Combined sewers
R+V	0.4915	0.5336	

Appendix J – Monthly Income Check Sheet**NI WATER****Income check for March 2023**

		ACTION BY	COMPLETE BY
1.	Transaction report for income, bad debt and discount ties up to the GL posting.	PMcN	05/04/23
2.	DCR listing and TE accrual totals agree to the Table in the Day 3 report.	PMcN	05/04/23
3.	The number of days in the DCR detailed listing has been increased by the correct number of days in the month.	PMcN	05/04/23
4.	There are no obvious large incorrect items of accrued income in the DCR listing.	PMcN	05/04/23
5.	Review the DCR, for where there is volume in m ³ , but no £.	PMcN/ DH	05/04/23
6.	Review the DCR, both MW and MS, for any negative items.	PMcN	05/04/23
7.	Review top 300 customers on DCR for any material over-statement arising from leakage/incorrect meter exchange/faulty meter, etc.	DH	05/04/23
8.	Total for “Ordinary Customers N-stops” agrees total per “Referred Bills Summary” agrees to total per “N-stop Detail”.	DH	05/04/23
9.	N-stop detail does not contain any duplicate or triplicate lines.	DH	05/04/23
10.	Debit balance and credit balances in the Day 3 report agree to the debt report.	PMcN	05/04/23
11.	Cash in the FN012 summary agrees to the cash report.	PMcN	05/04/23
12.	The FN012 Summary Total has the correct balance c/f and b/f.	PMcN	05/04/23
13.	Have all the correct adjustments been made for additional provisions/provision release?	PMcN	06/04/23
14.	Does the summary Excel income report agree to Oracle?	PMcN	06/04/23

NORTHERN IRELAND WATER LIMITED - ANNUAL INFORMATION RETURN

ANNUAL INFORMATION RETURN - TABLE 25 REGULATORY ACCOUNTS (HISTORIC COST ACCOUNTING)
ANALYSIS OF FIXED ASSETS BY ASSET TYPE (TOTAL)

DESCRIPTION	UNITS	DP	1				2				3				4				5				6				7				8				9
			INFRASTRUCTURE ASSETS		OPERATIONAL ASSETS		OTHER TANGIBLE ASSETS		SUBTOTAL		INFRASTRUCTURE ASSETS		OPERATIONAL ASSETS		OTHER TANGIBLE ASSETS		SUBTOTAL		INFRASTRUCTURE ASSETS		OPERATIONAL ASSETS		OTHER TANGIBLE ASSETS		SUBTOTAL		INFRASTRUCTURE ASSETS		OPERATIONAL ASSETS		OTHER TANGIBLE ASSETS		SUBTOTAL		TOTAL
A GROSS REPLACEMENT COST																																			
1	Gross replacement cost at 1 April	£m	3	1,009,693	613,799	98,952	1,722,444	1,358,205	1,351,546	118,022	2,827,774	4,550,219																							
2	AMP adjustment	£m	3	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000																							
3	RPI adjustment	£m	3																																
4	Disposals	£m	3	-0,322	0,000	-0,569	-0,891	-0,892	0,000	-0,659	-1,341	-2,232																							
5	Additions	£m	3	45,319	77,978	12,071	135,368	62,797	112,132	28,908	203,827	339,195																							
6	Gross replacement cost at 31 March	£m	3	1,054,692	691,777	110,454	1,856,923	1,420,310	1,463,678	146,271	3,030,260	4,887,182																							
B DEPRECIATION																																			
7	Depreciation at 1 April	£m	3	119,230	188,516	59,373	367,120	93,629	426,886	60,918	581,433	948,558																							
8	AMP adjustment	£m	3	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000																							
9	AMP adjustment - gross MEA revaluation	£m	3	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000																							
10	Index	£m	3	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000																							
11	RPI adjustment	£m	3																																
12	Disposals	£m	3	-0,322	0,000	-0,564	-0,886	-0,882	0,000	-0,659	-1,341	-2,227																							
13	Charge for year	£m	3	11,230	21,475	6,816	39,521	9,664	44,303	5,409	59,376	98,897																							
14	Depreciation at 31 March	£m	3	130,144	209,991	66,826	406,961	102,811	471,189	66,688	639,469	1,045,228																							
15	Net book amount at 31 March	£m	3	924,548	481,785	44,829	1,451,162	1,317,698	952,450	80,603	2,380,792	3,841,954																							
16	Net book amount at 1 April	£m	3	890,459	425,282	39,579	1,355,320	1,264,576	924,661	57,104	2,246,341	3,601,661																							

Table 25 – Analysis of Fixed Assets by Asset Type (Total)

The following asset categories have been analysed in the table as follows:

- 'Infrastructure assets' include infrastructure assets only.
- Operational assets' include land, buildings and civils.
- 'Other tangible assets' include surplus land, buildings and civils, mobile plant and IT.

Gross Book Value at 1 April and Depreciation at 1 April

The total opening balances for gross book value and depreciation at 1 April 2022 have been brought forward from the total closing balances for gross book value and depreciation at 31 March 2022. The analysis across asset categories is based on analysis within the fixed asset register and is based on the IFRS statutory accounts.

AMP Adjustment

There was no AMP adjustment during the year.

Impairment

There was no impairment required of surplus lands, buildings and civils during the year.

Disposals

Disposals during the year consisted of surplus land, infrastructure and mobile plants (vans) assets. All disposals have depreciation in the month of disposal.

Additions

Additions consisted of capital expenditure incurred during the year plus adopted sewers and sewage pumping stations and PPP assets (see below). When the assets created by the capital expenditure are commissioned, they are put onto the fixed asset register and depreciation commences the following month.

This following table is a reconciliation between total capital expenditure and additions to fixed assets: -

Total UK GAAP expenditure in CWP (incl. Operations)	295,713
Less: expenditure classified as opex under IFRS	-1,376
Add: Capital maintenance Omega	1,327
Add: Capital maintenance Kinnegar	0
Less: leases correction	-26
Total IFRS expenditure in CWP (incl. Operations)	295,638
Add: Water and sewer connections	4,237
Add: adopted assets - infrastructure	28,534
Add: adopted assets - non-infrastructure	1,148
Add: capitalised interest	9,636
Add: leases addition	0
Total additions per statutory accounts	339,193
PPE note - additions	288,579
PPE note - customor contributions	29,682
Intangibles note - additions	20,932
Total additions per statutory notes	339,193

PPP Assets Additions

During the year, there were on-balance sheet additions to PPP assets. Therefore, there was an element in the table relating to PPP assets totalling to [REDACTED] relating to the Alpha capital maintenance fund and [REDACTED] relating to Omega.

Depreciation Charge for Year

Historical cost depreciation charge during the year was calculated based on the opening GBV at 1 April 2022. Additions and disposals during the year were taken into account in calculating the depreciation charge.

Commentary

All assets were analysed to each of their respective asset categories and service activities to identify the water and sewerage services. The management and general service activity assets, with a GBV of £25,583,526.23 (21/22 IFRS: £25,841,391.85) as at 31 March 2023, could not be readily identified as water and sewerage services and have been split as per IFM: Water 41% and Sewerage 59%.

Table 25 has also been adjusted to include only the appointed business and exclude the un-appointed business relating to vehicle maintenance carried out for third parties. This has been adjusted through the opening balances for Water Services – Other Assets.

NORTHERN IRELAND WATER LIMITED - ANNUAL INFORMATION RETURN

ANNUAL INFORMATION RETURN - TABLE 28 REGULATORY ACCOUNTS
CASH FLOW STATEMENT FOR YEAR ENDING 31 MARCH (TOTAL)

DESCRIPTION	UNITS	DP	1	2	3	4	5	6	7	8	9	10	11	12
			2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
1 Net cashflow from operating activities	£m	3	170,228	182,677	182,769	221,058	229,446	197,146	182,850	206,427				
A RETURN ON INVESTMENTS & SERVICING OF FINANCE														
2 Interest received	£m	3	0,092	0,074	0,103	0,429	0,455	1,625	1,356	1,995				
3 Interest paid	£m	3	-46,568	-46,945	-47,537	-49,199	-45,293	-45,113	-46,119	-46,003				
4 Interest in finance lease rentals	£m	3	-6,701	-6,562	-6,406	-18,826	-18,261	-17,521	-16,692	-15,842				
5 Non-equity dividends paid	£m	3	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000				
6 Net cashflow from returns on investments & servicing of finance	£m	3	-53,177	-53,433	-53,840	-67,596	-63,099	-61,109	-61,455	-59,850				
B TAXATION														
7 Taxation (paid)/received	£m	3	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000				
C CAPITAL EXPENDITURE AND FINANCIAL INVESTMENT														
8 Gross cost of purchase of fixed assets	£m	3	-115,602	-128,215	-158,278	-183,297	-184,328	-171,998	-216,274	-286,687				
9 Receipts of grants and contributions	£m	3	7,980	11,550	12,910	1,384	4,772	11,076	2,257	0,375				
10 Infrastructure renewals expenditure	£m	3	-20,144	-20,145	-30,250	0,000	0,000	0,000	0,000	0,000				
11 Disposal of fixed assets	£m	3	1,693	1,096	1,536	0,646	1,467	0,250	0,613	0,425				
12 Movements on long term loans to group companies	£m	3	0,000	0,000	0,000	-2,998	-0,392	-1,097	0,710	0,356				
a12 Insurance proceeds	£m	3							1,120	0,000				
13 Net cashflow from investing activities	£m	3	-126,073	-135,714	-174,082	-184,265	-178,481	-161,769	-211,574	-285,531				
D ACQUISITIONS AND DISPOSALS														
14 Acquisitions and disposals	£m	3	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000				
E EQUITY DIVIDENDS														
15 Equity dividends paid	£m	3	-22,887	-21,510	-21,153	-23,742	-25,185	-26,619	-27,482	-17,121				
F MANAGEMENT OF LIQUID RESOURCES														
16 Net cashflow from management of liquid resources	£m	3	-0,980	-1,501	-0,007	1,237	-0,006	-0,001	-0,001	-0,009				
17 Net cashflow before financing	£m	3	-32,889	-29,481	-66,313	-53,308	-37,325	-62,352	-117,653	-156,084				
G FINANCING														
18 Capital in finance lease rentals	£m	3	-1,888	-2,122	-2,376	-5,706	-7,028	-8,148	-8,994	-10,728				
19 New bank loans taken out	£m	3	36,000	30,000	69,000	64,000	40,000	83,000	170,000	155,000				
20 Repayment of bank loans	£m	3	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000				
21 Proceeds from share issues	£m	3	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000				
22 Net cash inflow from financing	£m	3	34,112	27,878	66,624	58,294	32,972	74,852	161,006	144,272				
23 Increase/(decrease) in cash in the year	£m	3	1,223	-1,603	0,311	4,986	-4,353	22,500	43,353	-11,812				

Table 28 – Cashflow statement**Significant movements from last period****Line 1 - Net cashflow from operating activities**

This has increased by £23.568m (12.89%) compared to the previous year's figures in the accounts. The reconciliation of operating profit to net cashflow from operating activities is shown in Table 29.

This is summarised in Table 29 as follows:

1	Historical cost operating profit	£m	101.340
2	Movement in working capital	£m	5.212
3	Depreciation	£m	98.895
4	Historical cost profit on sale of fixed assets	£m	(0.420)
5	Other non-cash profit and loss items	£m	1.400
6	Net cash flow from operating activities	£m	206.427

Line 3 – Interest paid

Interest paid has decreased by (0.25%) from £46.119m to £46.003m. There is an additional loan drawdown of £155m in 2022-2023. The balance on loans can be summarised as follows:

At 1 April 2007	£150m
At 31 March 2008	£307.56m (average for year £228.78m)
At 31 March 2009	£457.56m (average for year £382.56m)
At 31 March 2010	£627.56m (average for year £542.56m)
At 31 March 2011	£737.56m (average for year £682.56m)
At 31 March 2012	£807.56m (average for year £772.56m)
At 31 March 2013	£882.56m (average for year £845.06m)
At 31 March 2014	£911.56m (average for year £897.06m)
At 31 March 2015	£947.56m (average for year £929.56m)
At 31 March 2016	£983.56m (average for year £965.56m)
At 31 March 2017	£1,013.56m (average for year £998.56m)
At 31 March 2018	£1,082.56m (average for the year £1,048.06m)
At 31 March 2019	£1,146.56m (average for the year £1,114.56m)
At 31 March 2020	£1,186.56m (average for the year £1,166.56m)
At 31 March 2021	£1,269.56m (average for the year £1,228.06m)
At 31 March 2022	£1,439.560 (average for the year £1,354.56m)
At 31 March 2023	£1,594.560 (average for the year £1,517.06m)

Line 4 - Interest in finance lease rentals

The PPP project [REDACTED] during 2022-2023 gave rise to [REDACTED] (2021/22: [REDACTED]) interest payable on the associated finance lease. This decrease arises as an element of the unitary charge paid to the concessionaire is allocated by NIW to reducing the principal on the lease (see Line 18). There was [REDACTED] of interest payable relating to finance leases on the implementation of IFRS 16 Leases in 2019/20.

Line 8 - Gross cost of purchase of fixed assets

These have increased by £70.413m (32.56%). This is consistent with capital expenditure plans for 2022-23 and the movement in capital creditors across the period.

Line 16 - Net cashflow from management of liquid resources

Management of liquid resources represents the movement in monies held on short-term deposit accounts.

Monies on deposit have increased by £0.009m from the end of 2021-2022 to the end of 2022-2023. The balance on deposit at the end of 31st March 2023 is £1.287m.

Line 18 - Capital in finance lease rentals.

An amount of [REDACTED] was made in payment against the Alpha, Omega and Kinnegar PPP finance lease. An amount of [REDACTED] was made against finance leases on implementation of IFRS 16 Leases in 2019/20.

Line 19 - New bank loans taken out

In 2022-2023 £155m of additional loan notes were drawn down from Dfl. These new loans were required to part finance the ongoing capital expenditure programme with the balance of capital expenditure financed by working capital.

PPP

The elements of PPP included in the cashflow are as follows:

The PPP aspect to lines 4 and 18 in Table 28 are outlined in 'significant movements from last period' in this commentary.

Included in Line 8: Gross cost of purchase of fixed assets in Table 28 is [REDACTED] in respect of capital maintenance additions for Alpha, Omega and Kinnegar PPP paid for via the unitary payments. All other capital expenditure for Alpha, Omega and Kinnegar is accounted for through the repayment of the finance lease.

NORTHERN IRELAND WATER LIMITED - ANNUAL INFORMATION RETURN

ANNUAL INFORMATION RETURN - TABLE 29 REGULATORY ACCOUNTS (HISTORIC COST ACCOUNTING)
RECONCILIATION OF OPERATING PROFIT TO NET CASH FLOW FROM OPERATING ACTIVITIES (TOTAL)

DESCRIPTION	UNITS	DP	1	2	3	4	5	6	7	8	9	10	11	12
			2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
1 Operating profit	£m	3	53.738	56.925	106.485	141.077	142.734	114.964	101.209	101.340				
2 Working capital adjustment	£m	3												
3 Movement in working capital	£m	3	-9.675	-1.670	-5.910	3.535	1.870	11.878	-19.199	5.212				
4 Receipts from other income	£m	3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000				
5 Depreciation	£m	3	110.522	110.854	56.418	82.165	84.274	88.080	91.424	98.895				
6 Profit on sale of fixed assets	£m	3	-0.091	0.489	-1.035	-0.551	-0.467	-0.193	-0.585	-0.420				
7 Infrastructure renewals charge	£m	3	25.286	25.008	25.757	0.000	0.000	0.000	0.000	0.000				
8 Other non-cash profit and loss items	£m	3	-8.036	-5.897	1.054	-5.168	1.035	-17.583	10.010	1.400				
9 Net cash flow from operating activities	£m	3	170.228	182.677	182.769	221.058	229.446	197.146	182.859	206.427				

Chapter 30 – Capital investment Summary Report

Refer to Chapter 40 for detailed commentary on the table.

Energy Annex - 22/23 FY Energy Reduce Use & Energy Future

Within the PC21 Plan, NI Water is focusing on a number of main areas of energy efficiency:

- Energy Reduce Use i.e., optimising our current asset base, new assets to ensure they are energy efficient and taking into account whole life Opex costs.
- Energy Future i.e., installation of new solar projects, electrical vehicle charging infrastructure, wind turbines etc.
- Other innovation initiatives.

Energy Reduce Use for the 22/23 FY

The main focus for Energy Reduce Use has been on:

- Pump Optimisation
- Process Optimisation

Within the PC21 period there has been £4.5m allocated for Energy Reduce Use work, to provide sustainable benefits of £1.3m over the PC21 period.

Pump Optimisation

For pump enhancement and optimisation work, we have focused on optimising the energy consumption of our highest energy consuming WPS sites. These pumping systems are being reviewed as a whole i.e., the most appropriate pump to match the system curve providing the best Specific Energy Consumption (SEC) for the system.

Within the 22/23 FY, approval was given to upgrade pumps at 6 sites at a cost of £1,558k, which using today's energy price will provide sustainable benefits of over £264k/annum.

In addition, we have implemented Adaptive Efficiency Control (AEC) at 4 No. WPS. This application considers energy costs, pump performance (i.e., SEC at various pump speeds), receiving service reservoir constraints (high/low levels) to build and adapt a model so as water can be pumped to these service reservoirs as cost efficiently as possible (utilising lower cost tariff times where possible). For example, depending on constraints, it may be possible to pump more at night at a cheaper rate, and top up during the day at the optimal SEC to ensure energy costs are kept as low as possible. The 4 sites completed this year have proven very successful with a Phase 3 rollout now to commence in 23/24 FY.

Process Optimisation

Working with Water & Wastewater colleagues we have examined several projects in 22/23 FY to optimise our treatment process. Within Wastewater we have completed the odour control work at the North Coast WwTW and have approved further odour control work at Carrickfergus, Whitehouse and Ballymena WwTW's. We have installed and are reviewing the compliance and energy performance of digital twin solutions we have implemented at Omagh and North Coast WwTW's.

Funding & Benefits

In 22/23 FY we have invested just over £1.9m in Reduce Use energy efficiency initiatives, with expected benefits of over 1.86m kWh/annum (c.£373k/annum – see Table 1 below for outline of projects). Our spend profile is ahead of schedule and we are exploring additional funding streams to allow us to progress further energy efficiency reduce use work in the PC21 period.

The benefits profile of £1.3m of Energy Reduce Use benefits for PC21 period is currently ahead of schedule following a strong performance in Year 2. The main areas which contributed to a strong performance in year 2 related to closer working relationships with our Water & Wastewater colleagues to ensure energy efficiency was front of mind when operating their sites. Benefits realised from pump optimisation work and energy efficiency work at Dunore WTW's including switching off the VPSA as a trial greatly assisted benefits realisation in Year 2 of the PC21 period.

Further work will be progressed in Year 3 to develop further energy reduce use projects for delivery to ensure energy sustainability is a key cornerstone of our energy strategy.

Table 1 - Outline of Investment in Energy Reduce Use Projects 22/23 FY.

Project	Date Approved	Project Name	Total
KI776	10/03/2022	Ballygomartin WPS – New Pumps	£154,100
KI776	13/04/2022	Seagahan WTW – New High Lift Pumps	£136,000
KI776	25/06/2022	Adaptive Efficiency Control – Phase II	£26,000
KI776	25/06/2022	North Road WPS – New Pumps	£232,100
KI776	16/11/2022	Garstings Hill WPS - New Pumps	£199,100
KI776	10/03/2023	Poleglass WPS – New Pumps	£233,200
KI776	09/05/2022	Derg WTW – New High Lift Pumps	£603,900
KI778	08/12/2022	Altnahinch WTW – Lighting Upgrade	£67,000
KI778	08/12/2022	Dungonnell WTW – Lighting Upgrade	£51,000
KI778	08/12/2022	Carrickfergus WwTW – Odour Control	£28,750
KI778	22/03/2023	Ballinrees WTW – Lighting Upgrade	£101,000
KI778	22/03/2023	Ballymena WwTW – Odour Control	£46,000
KI778	22/03/2023	Whitehouse WwTW – Odour Control	£57,500
			£1,935,650

Energy Future

Energy Future initiatives commenced on three projects which incurred capital expenditure as follows:

- Planning for Solar Installations
- Electric Vehicle Charging Infrastructure
- Battery Storage
- Hydrogen oxygen demonstrator

J1162 Planning for Solar Installations

Capital Requested in DD Business Plan: £6.9m (Mar 22 inflation estimates), expenditure in 21/22 £36k, and £802k in 22/23.

A review of the top 100 energy-consuming sites was carried out to assess their suitability for solar PV installations. The planning for a number of these projects were advanced during the first year of PC21 (Dunore, Enniskillen, Limavady, and Drumaroad), and delivery has now commenced and should be complete this year 23/24. In addition to preparing a pipeline of solar projects including Dunore and 8 other sites. Having assessed the electricity demand, and availability of adjacent NI Water land, it is anticipated that the generation of electricity during PC21 can be doubled through the installation of an additional 8MW of solar PV.

KI771 PftF Energy - Earn More EV Charging revenue

Capital Requested in DD Business Plan - £2.0m (Mar 22 inflation estimates), expenditure in 21/22 £280k, and £320k in 22/23.

The Department for Transport's "The Road to Zero" strategy sets out an ambition to see at least half of new car sales as ultra-low emission vehicles (ULEVs) by 2030. This will also create further demand for EV charging points. NIW has completed a pilot for Electric Vehicle Charging at four of its locations being North Coast, Pennyburn, Ballymena and Belfast. Ultra-rapid chargers have been installed and the use of these will be monitored to inform further roll out over the PC21 period. A further 6 ultra-rapid chargers, and 12 22kW chargers are being rolled out across NIW sites in 22/23.

KI650 Energy Storage

Capital Requested in DD Business Plan: £6.8m (Mar 22 inflation estimates), expenditure in 21/22 £186k, and £2829k in 22/23.

Potential storage opportunities have been identified across NI Water sites, including at Dunore Point, where there are large solar generation assets with grid export capacity. Renewable energy in excess of the site's demand could be stored for future use, rather than exported to the grid. Different revenue streams available for battery storage in NI could also be accessed now and in the future, considering Transmission System Operator (TSO) and Distribution Network Operator (DNO) changes. NIW have engaged in Early Contractor Involvement on the roll out of a battery at Dunore and have invested in planning permission, which has been recently granted (22/23). Delivery of a 4.1MW Battery Energy Storage System at Dunore has commenced and is due to be completed in Jan 2024.

Renewable Generation via Power Purchase Agreements (PPAs)

Expenditure in 21/22 £0k, and £0k 22/23.

Within the PC21 Energy Efficiency programme, PPAs have been identified as a credible efficiency measure. Under a PPA, a third party would fund and deliver the solution (e.g., a wind turbine). It is envisaged NI Water would enter into contracts to purchase the electricity generated at a rate below that available from the main electricity suppliers (from the grid), for a defined period e.g., 10 – 15 year duration. Such arrangements would contribute to renewable energy targets and should deliver an Opex cost saving over the contract duration.

A Final Business Case was being discussed with DfI/DoF during 21/22 and 22/23, with accounting treatment at the center of the discussion. Both the Private Wire and Virtual PPA arrangements continue to be considered.

Wind Energy

Capital Requested in DD Business Plan: £2.6m (Mar 22 inflation estimates), expenditure in 21/22 £0k, and £21K in 22/23.

Within the PC21 Energy Efficiency programme, a wind turbine has been identified as an investment NIW would progress. The development of wind turbine(s) on NI Water site(s) will continue to improve their ability to maintain business continuity in the following ways:

- Providing predictability of future electricity costs
- Hedging against fuel and electricity price volatility
- Reducing their exposure of potential future changes to carbon pricing

NIW continue to assess the best site location given site load, grid capability, and planning constraints. Two sites have emerged as optimum locations being Carmoney and Drumaroad, which is located on 3rd party land.

Other Energy Initiatives

JI223 Ground Water Abstraction

Capital Requested in DD Business Plan (20f, £2.7m (Mar 22 inflation estimates), expenditure in 21/22 £1.503k, 22/23 £669k (includes £70K for Solar PV, feasibility).

NI Water has undertaken a feasibility exercise which has concluded that that groundwater is a source of sustainable, good quality raw water that can be accessed close to the point of need. With treatment, groundwater can be supplied into the water distribution system at appropriate Service Reservoir sites. The groundwater investigations have considered several drivers such as water quality, yield potential and localised supply/demand pressures i.e., resilience.

The feasibility exercise concluded that a site at Moneymore was to be taken forward for construction in 2021/22. Moneymore is within the Central Water Resource Zone (WRZ) an area which has been significantly impacted by High Demand Issues in recent years. The project included the installation a small Water Treatment Works, 2 production boreholes, 1 monitoring borehole, associated pipe infrastructure and telemetry along with a 50 kW Solar PV system which will further enhance carbon reduction benefits and reduce operating costs. The abstraction installations and WTW at Moneymore SR was completed and came into operation in August 2022. The Solar installation has been generating since June 2022. The WTW and associated infrastructure delivers 0.6MI/d.

The initial supply/demand assessments from the latest Water Resource and Supply Resilience Plan (WR & SR Plan) have identified future deficits across Northern Ireland based on latest climate change projections and also learnings from recent high demand/drought issues. From this further groundwater locations maybe invested in as the learning from feasibility studies with this project will be used to form Business Cases.

Monitors and Sensors

Capital Requested in DD Business Plan (20f): £4.8m (Mar 22 inflation estimates).

KI765 Sub Metering Programme at WTW and WwTW) expenditure in 21/22 £1.178m, £22/23 £628k.

NI Water are installing energy sensors, known as sub meters on energy consuming assets in 17 Water Treatment Works (WTW) and 20 Wastewater Treatment Works (WwTW). Data from these sensors will be automated in near real time, visualised onto Power BI dashboards, and aligned with other key process performance data. The insights on the dashboards will significantly enhance decision-making, permit credible process-engineering reviews/ appraisals to be undertaken, and thereby identify performance improvements. This will result in better-informed data driven decision making and identify key inefficiencies in the processes, identify opportunities for improvement. The outputs will enable NI Water's PC21 Reduce Use Energy programme and the proposed Intelligent Operating Centre (IOC) to collect key performance data in near real time, which will result in improved information flow to identify inefficient trends.

DfE Funded Small Business Research Initiative Projects SBRI and Hydrogen and Oxygen Demonstrator Project

Northern Ireland Water received DfE funding for two phase 1 small business research initiatives and one phase 2 project with a total spend of £532k in 21/22. In 22/23 a total spend of £299k for two phase 2 projects.

The total spend with in 21/22 in the Hydrogen and Oxygen Demonstrator Project was £2665k out of £4.5m total. A total spend in 22/23 of £700k.

22/23 expenditure for energy projects

Prog. ID	Project Name	22/23 Total £k
Energy Efficiency		
KI765	Sub Metering Programme at WTW and WwTW	628
KI776	Pump Optimisation at Water & Wastewater Assets	992
KI778	Water and Wastewater Process Optimisation	497
NA061	Energy Reduction by Pump / Pump Control Optimisation	8
Energy Future		
JI162	Planning for Solar Installations	802
KI771	PfF Energy - Earn More EV Charging revenue	598
KI650	Energy Storage	2829
Other		
JI223	Ground Water Abstraction	699
NA068	Energy Storage SBRI	0
NA089	SBRI Energy Recovery from WwT Process	200
NA090	SBRI: Hydrogen Logistics	100
KI744	Hydrogen and Oxygen	700
Total 22/23		8,053

	FD NOMINAL post eff Mar 23 £m Year 1	FD NOMINAL post eff Mar 23 £m Year 2	FD NOMINAL post eff Mar 23 £m Year 3	FD NOMINAL post eff Mar 23 £m Year 4	FD NOMINAL post eff Mar 23 £m Year 5	FD NOMINAL post eff Mar 23 £m Year 6	FD NOMINAL post eff Mar 23 £m 4 years
PfF Energy - Enabling Technology - Energy sensors & meters	0.629	0.723	0.767	0.842	0.885	0.930	4.776
PfF Energy - Use Less Energy Efficiency in W/WW/Asset Ops	0.621	0.702	0.744	0.780	0.819	0.862	4.528
PfF Energy - Use Less Energy ground water abstraction	0.595	0.672	0.713	0.747	0.000	0.000	2.725
PfF Energy - Buy Less Solar (Renewables)	(0.076)	1.214	1.290	1.420	1.492	1.569	6.909
PfF Energy - Buy Less Wind (Renewables)	0.000	0.000	2.571	0.000	0.000	0.000	2.571
PfF Energy - Earn More EV Charging revenue	(0.042)	0.453	0.481	0.542	0.569	0.000	2.003
PfF Energy - Earn More Energy Storage	(0.073)	2.142	2.273	2.449	0.000	0.000	6.791
TOTAL	1.655	5.905	8.840	6.780	3.765	3.361	30.304

NORTHERN IRELAND WATER LIMITED - ANNUAL INFORMATION RETURN

ANNUAL INFORMATION RETURN - TABLE 32 FINANCIAL MEASURES

ANALYSIS OF FIXED ASSET ADDITIONS AND ASSET MAINTENANCE BY ASSET TYPE (HISTORIC COST ACCOUNTING) (NIW Only)

DESCRIPTION	UNITS	DP	1	2	3	4	5	6	7
			WATER SERVICE			SEWERAGE SERVICE			TOTAL
			INFRASTRUCTURE ASSETS	NON-INFRASTRUCTURE ASSETS	SUBTOTAL	INFRASTRUCTURE ASSETS	NON-INFRASTRUCTURE ASSETS	SUBTOTAL	
A NIW ADDITIONS - NEW ASSETS (ENHANCEMENT)									
1 Water resource facilities	£m	3	0.064	1.038	1.102				1.102
2 Water treatment works	£m	3		18.666	18.666				18.666
3 Water distribution mains	£m	3	12.333	0.018	12.351				12.351
4 Service reservoirs and water towers	£m	3		6.922	6.922				6.922
5 Pumping stations	£m	3		3.470	3.470				3.470
6 Water management and general	£m	3	0.370	8.745	9.115				9.115
7 Sewerage	£m	3				18.535	3.674	22.209	22.209
8 Sea outfalls and headworks	£m	3				0.054	2.173	2.226	2.226
9 Sewage treatment works	£m	3					31.429	31.429	31.429
10 Sludge treatment works	£m	3					2.162	2.162	2.162
11 Sludge disposal	£m	3				0.000	0.000	0.000	0.000
12 In-line pumping stations	£m	3					5.466	5.466	5.466
13 Terminal pumping stations	£m	3					0.597	0.597	0.597
14 Sewerage management and general	£m	3				4.334	3.909	8.243	8.243
15 Total infrastructure additions (Enhancement)	£m	3	12.767		12.767	22.923		22.923	35.689
16 Total non-infrastructure additions (Enhancement)	£m	3		38.859	38.859			49.409	88.269
17 Total additions (Enhancement)	£m	3	12.767	38.859	51.626	22.923	49.409	72.332	123.958
B NIW BASE SERVICE PROVISION									
18 Water resource facilities	£m	3	1.524	2.418	3.942				3.942
19 Water treatment works	£m	3		18.216	18.216				18.216
20 Water distribution mains	£m	3	31.436	3.436	34.872				34.872
21 Service reservoirs and water towers	£m	3		7.289	7.289				7.289
22 Pumping stations	£m	3		5.083	5.083				5.083
23 Water management and general	£m	3	1.245	13.901	15.146				15.146
24 Sewerage	£m	3				14.319	1.651	15.971	15.971
25 Sea outfalls and headworks	£m	3				0.331	0.167	0.498	0.498
26 Sewage treatment works	£m	3					41.007	41.007	41.007
27 Sludge treatment works	£m	3					5.039	5.039	5.039
28 Sludge disposal	£m	3				0.000	0.000	0.000	0.000
29 In-line pumping stations	£m	3					8.463	8.463	8.463
30 Terminal pumping stations	£m	3					0.622	0.622	0.622
31 Sewerage management and general	£m	3				9.251	6.153	15.404	15.404
32 Total infrastructure renewals (Base)	£m	3	34.206		34.206	23.901		23.901	58.107
33 Total non-infrastructure expenditure (Base)	£m	3		50.342	50.342			63.102	113.444
34 Total expenditure (Base service provision)	£m	3	34.206	50.342	84.548	23.901	63.102	87.003	171.551

**Table 32 – Analysis of Fixed Asset Additions and Asset Maintenance by Asset Type
(Current Cost Accounting)**

Refer to Chapter 40 for detailed commentary on this table. There are no reconciling items to report.

Table 33 – Depreciation Charge by Asset Type**IFRS Depreciation Charge**

The depreciation charge for the year has been populated using the same methodology used to populate Table 25. IFRS depreciation was calculated using the Fixed Asset Register (Real Asset Management).

The final IFRS depreciation report was used to analyse assets into each of their respective asset categories and service activities to identify the water and sewerage services. The management and general service activity could not be readily identified as water and sewerage services and have used the following percentages split as per IFM: Water 41% and Sewerage 59%.

The table has been populated using actual depreciation figures for each financial year contained in the relevant Regulatory Accounts.

With respect to Confidence Grades this is reported as B3. This is applied given the close link with the CIDA allocations data source which has been reported as B3 in the capital expenditure tables 35 and 36.

There are three main PPP Projects – Alpha, Omega and Kinnegar. The depreciation for these PPP assets is shown separately in the second table for PPP only.

Depreciation for the year in relation to the PPP Alpha Project was ██████████ for 2022/23 (2021/22: ██████████). Depreciation for Omega in 2022/23 is ██████████ (2021/22: ██████████) and Kinnegar ██████████ (2021/22: ██████████).

The asset lives used in calculating depreciation are consistent with those that have been used to populate Table 34.

	Water (22/23)	Sewerage (22/23)	Total (22/23)
IFRS Depreciation in year	£39,536,273.47	£59,360,232.70	£98,896,506.17
Accelerated Depreciation	-	-	-
Total (2022/2023)	£39,536,273.47	£59,360,232.70	£98,896,506.17

	Water (21/22)	Sewerage (21/22)	Total (21/22)
IFRS Depreciation in year	£36,036,358.54	£55,387,443.68	£91,423,802.22
Accelerated Depreciation	-	-	-
Total (2021/2022)	£36,036,358.54	£55,387,443.68	£91,423,802.22

Infrastructure Renewals accounting

The IRC calculation for 22/23 is based on the final determination arising from PC21. The Regulator determined that the IRC and IRE will be the same for the six year period of PC21. The projected IRE forms part of the PC21 capital expenditure plans.

The difference between the actual out-turn IRE and the IRC is treated as an accrual or prepayment.

2022-2023 IRC

The IRC for 2022-2023 based on PC21 can be summarised as follows:

Water	- £25.432m
Sewerage	- £24.058m
Total	- £49.490m

The out-turn IRE for 2022-2023 can be shown as follows:

Water	- £16.646m
Sewerage	- £13.599m
Total	- £30.245m

The accruals at 31 March 2023 can be shown as follows:

	W TOTAL £m	S TOTAL £m	Total TOTAL £m
IRE	16.646	13.599	30.245
IRC	(25.432)	(24.058)	(49.490)
In year prepayment / (accrual)	(8.786)	(10.459)	(19.245)
c/f prepayment / (accrual)	39.207	(6.070)	33.137
Cumulative prepayment / (accrual)	30.421	(16.529)	13.892

At the end of the year to 31 March 2023 a prepayment balance of £13.892m was evident. This balance arose as the in-year accrual of £19.245m for 2022/23 was added to the cumulative brought forward prepayment balance of £33.137m, which existed at 31st March 2022.

In line with the underlying principles of infrastructure renewals accounting it is anticipated that the cumulative level of IRE and IRC should broadly match over the longer term. The water prepayment and sewerage accrual at 31st March 2023 will be monitored to ensure that the level of IRC charged in the future to the profit and loss account is appropriate given actual levels of IRE.

PPP

Alpha, Omega and Kinnegar have not given rise to any IRE for this year and therefore no IRC has been allocated to the PPP services.

The Statutory accounts are prepared under IFRS and infrastructure renewals accounting is not applied. Infrastructure depreciation is charged in the statutory accounts and the value of this would differ from the IRC in the regulatory accounts. However, AIR 23 has been

prepared under IFRS as directed by the Utility Regulator. No IRC is reported in the regulatory accounts. IRC and IRE are only reported in Table 33.

Table 34 – Financial Measures (Current Cost Accounting) - Analysis of Non-Infrastructure Fixed Asset Additions by Life Categories

Commentary and methodology

All the capital expenditure tables have been populated using project data extracted from the company's core project control system (CPMR), as well as ORACLE (Financial management system).

Internal training and mentoring has been ongoing with key staff mainly with Asset Delivery, Customer & Operations, PPP and Finance & Regulation directorates. Since 2010/11 this training has been delivered annually to external consultants and is based upon requests. Further training will be provided in future as well as refresher training for existing staff in line with a refresh of the CIDA Manual.

Methodology NI Water Table

Capital expenditure is analysed in 3 separate streams as follows:

- a) Capital Works Programme delivered by Capital Delivery in the Asset Delivery Directorate
- b) Operations Capital
- c) Management & General (M & G).

The methodology is explained in detail under these 3 areas as follows:

Capital works programme

Capital investment driver allocation (CIDA) processes have continued as per previous years.

- a) CAPTRAX – CAPTRAX continues to be reconciled on a monthly basis with ORACLE so the final reports can be run directly from CAPTRAX. Two CIDA reports are generated from CAPTRAX as follows:
 - CIDA non lands – This reports the accrual in 2022/23 against each project, excluding land acquisition, with a full CIDA output.
 - CIDA lands – This reports the accrual in 2022/23 against land acquisition and the associated CIDA output.
- b) CWP AIR reporting Model – The model developed in Excel for AIR19 and subsequent years has been adopted for AIR23 reporting. The model takes the outputs from the above reports from CAPTRAX and completes the tables 32, 34, & 36, 36a with the CWP element of Capital expenditure.

Costs are apportioned between infrastructure and non-infrastructure according to the process outlined in the CIDA manual.

NI Water continually review their existing processes regarding the application of CIDA and seek to ensure compliance and consistency.

No major control weaknesses were identified during 2022/23.

M & G

As commenced in AIR14 CPMR M&G has been used to report M & G investment directly from the system in a similar way to the Capital Works Programme. A single report provides all the information from the CPMR system.

Operating capital

This area captures all Capital expenditure which is not managed via the CWP or included within M & G. For all Capital projects not on the CWP (herein referred to Operating Capital

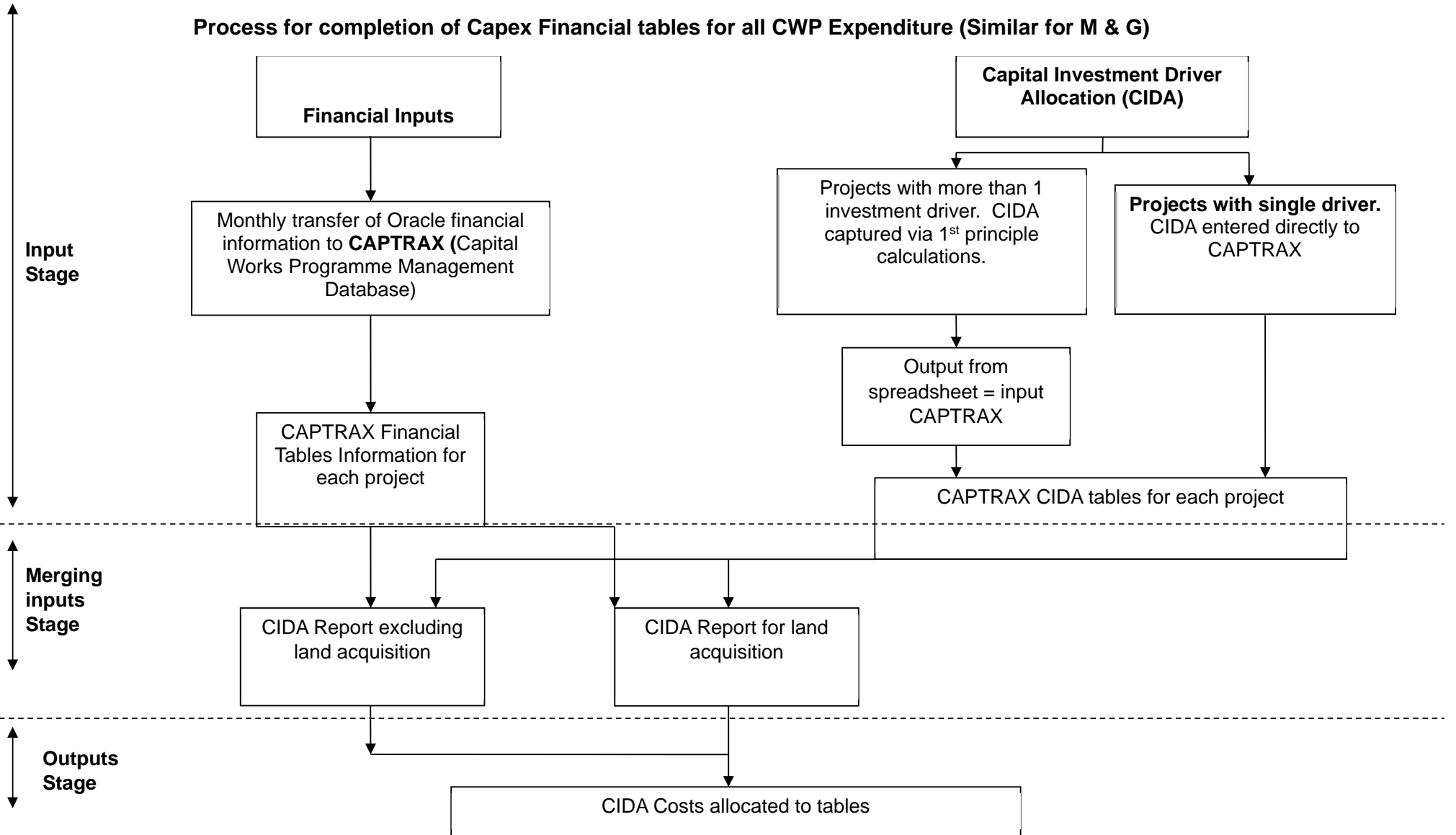
expenditure) the CIDA information has been captured at project level within CPMR Coptrax. This has been used in AIR21 for completion of Table 40. Unfortunately, the system needs further refinement to enable reporting information for Tables 32, 34, 36 and 36a accurately as there are a significant number of contracts within each project with combinations of a number of service areas, asset types and financial categories. For reporting in AIR23, each of the contracts was verified manually in order to ensure that accurate information was used for the population of the AIR tables in a similar manner to recent years. This approach uses the Asset In Course of Construction (AICC) database and ORACLE as data sources.

Table population

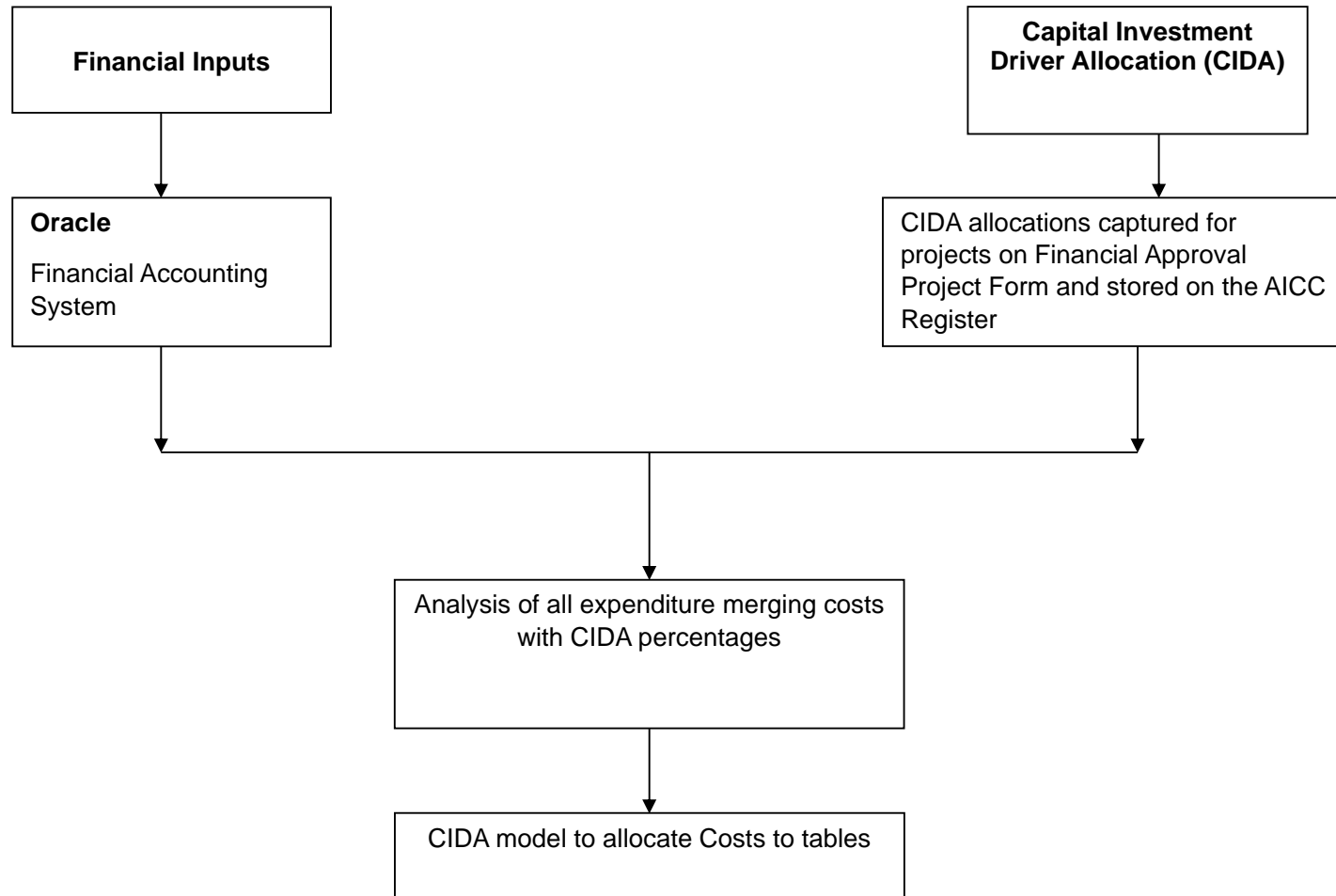
Data used in the population of the table is based on data extracted from the company's core systems and no assumptions are made in the allocation of project expenditure to the lines in the tables for all the expenditure with CIDA directly attributed. Any small rounding figures of CWP expenditure (due to CATPRAX rounding finance to the nearest £k), are apportioned in each table in equal portions to the allocated expenditure.

Process diagrams below show the process for completing the tables.

Process for completion of Capex Financial tables for all CWP Expenditure (Similar for M & G)



Process for Completion of Capex financial tables for Operating Capital



Asset lives

The last comprehensive review of asset lives was completed as part of NIAMP2 in 2001. An interim review was completed in 2011/12 following the reporter recommendations in AIR11 and 8 new financial categories have been added to list used in NI Water. Any further changes will be processed as they occur. Asset lives on historic projects have not been amended to reflect new asset life categories. The new financial categories added and in use from April 2012 are as follows:

Table 1: New financial categories

Financial Category	Definition	Life in years
Fences	All fences around sites	40
Meters	Domestic Water Meters	17
Batteries	Batteries for loggers, toughbooks etc.	4
Filter Media	Media in Biological filters, Sand filters etc.	20
MBR Membranes	MBR membranes	5
Rotating Biological Filters	RBC package plants	20
Kiosks	All kiosk type structures including small control kiosks and prefabricated control buildings	20
Steel Tanks	All Steel tanks for storage and processes	40

Following reporter review of the PC15 plan a change initiated for AIR16 has been continued in AIR23. This change applies to the life for Meters which have been changed to 17 years to align with PC15 Business plan assumptions.

The above categories have been added to CPMR/Captrax for CIDA allocation. The availability of the financial category is dependent on the asset type selected so for example MBR membranes are only available for selection within WwTW. The definitions have also been uploaded within the selection process, as a reminder to the project manager when selections are being made.

Individual judgements on asset lives are not made during this annual process of AIR collation.

Methodology PPP table

Figures for PPP Alpha Capital maintenance have been taken directly from the PPP Model and apportioned between Fixed Plant and Civils as per the PPP Model. This is the same process as adopted since AIR09.

PPP - Omega

PPP OMEGA capital of £1.3m has been reported in the AIR23 financial tables for the following reasons:

- The Capital Cost split between Civils and M & E has been extracted from the PPP Model. This does not distinguish between infra and non infra elements and unlike ALPHA no valid assumptions can be made to define individual projects as some of the projects contain both infra and non infra elements.
- QBEG information has been captured on each project within OMEGA in a similar basis as was captured for the SBP submission which includes backlog base. To maintain consistency within all the tables we have not populated any of the OMEGA capital expenditure within the tables.

PPP - Kinnegar

No PPP Kinnegar residual interest finance has been populated as NI Water has no information on either the QBEG or the Asset Life categories for this project.

NI Water Table

The asset lives adopted for Regulatory reporting are consistent with those in the Fixed Asset Register (FAR). The links for reporting purposes are outlined in the Capital investment Driver allocation manual.

The last comprehensive review of asset lives was completed as part of NIAMP2 in 2001. An interim review was completed in 2011/12 and new financial categories have been added to NI Water systems for application from April 2012.

Expenditure is charged to individual projects and these are assigned individual asset lives for regulatory reporting.

This table is consistent with the analysis in Table 32. All expenditure reported in Table 34 is in outturn prices, gross of grants and contributions.

PPP Table

The expenditure of [REDACTED] on this table relates to the Capital Maintenance element of PPP Alpha expenditure for 2022/23. The [REDACTED] is reported in Section B of the table and is split using the Asset lives split assumed in the PPP Model. There is no PPP Capital on Sewerage.

Land Disposal

The HCA book value is determined from the Fixed Asset Register based upon the Asset Management plan completed in 2001. The figures stated are the HCA book values for all disposals in the stated year.

Assets fully depreciated but still in use at year-end

The total current cost Gross Book Value (GBV) of assets on the fixed asset register at 31st March 23 with zero Net Book Value (NBV) is £243,155,293.48.

Confidence grades

Confidence grades have been assigned to the elements of Table 34 based on guidance received from the Reporter in AIR11:

“the Company should apply a confidence grade of B2 for most lines, with B3 for the smaller numbers (where a single misallocation could be more significant).”

NORTHERN IRELAND WATER LIMITED - ANNUAL INFORMATION RETURN

ANNUAL INFORMATION RETURN - TABLE 35 FINANCIAL MEASURES
CAPITAL INVESTMENT - PUBLIC EXPENDITURE RECONCILIATION

DESCRIPTION	UNITS	DP	1	2	3	4	5	6	7	8	9	10	11	12
			2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
A Available PE capital budget in nominal prices														
1 Public Expenditure capital budget available	£m	3												
B Capital budget statement in nominal prices														
2 Public Expenditure capital budget used	£m	3	140,201	147,099	174,969	162,956	153,441	170,659	222,050	290,127				
3 Alpha PPP maintenance	£m	3	-1,228	-0,500	-3,176	-1,857	-1,662	-2,384	-2,633	-1,816				
4 Residual interest in off-balance sheet PPP	£m	3												
5 IFRS infrastructure renewal charge adjustment	£m	3	1,194	1,117	1,188	1,213	0,000	0,000	0,000	0,000				
6 Further adjustments.....	£m	3	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000				
6a Unwinding of capital provision	£m	3	0,000	0,000	0,000	0,000	0,000	0,000	1,000	0,000				
6b Rounding	£m	3	-0,001	0,000	-0,003	0,002	-0,009	-0,002	-0,115	-0,051				
6c Decapitalised assets	£m	3	0,005	0,000	0,000	0,000	0,000	0,000	0,000	0,000				
6d Project Clear: Acquisition of Alpha PPP	£m	3			-29,179	0,000	0,000	0,000	0,000	0,000				
7 Capital grants and contributions	£m	3	7,985	11,550	14,009	14,005	25,970	14,396	14,072	12,781				
8 Capital grants and contributions transferred to deferred credits	£m	3	-0,999	-1,284	-1,452	-1,354	-1,457	-1,295	-1,440	-1,321				
9 NI Water gross capital budget	£m	3	143,691	154,337	152,620	171,135	172,366	177,352	228,810	295,820				

Table 35 – Financial Measures – Capital Investment – Public Expenditure Reconciliation

Introduction

This table provides a statement of the capital budget available and capital budget utilised in Public Expenditure terms and the gross capital expenditure by NI Water, all expressed in nominal terms. The table follows the content and structure of Table 3.2 of the PC21 information requirements to facilitate comparison between the Business Plan submission and actual expenditure.

Block A reports the available Public Expenditure capital budget agreed with the Department for infrastructure, DfI, for the relevant financial year. Block B provides a reconciliation between the Public Expenditure capital budget used and NI Water's gross capital expenditure, identifying differences arising from changes due to the treatment of PPP unitary charge, different accounting treatments and the impact of income from capital grants and contributions.

Line 1 - Public Expenditure capital budget available

Entries to line 1 represent the total budget 'Capital DEL Acquisitions' agreed with DfI for each financial year and includes movements to funding resulting from budget transfers within monitoring rounds. This is all expenditure which DfI classifies as 'capital DEL' and includes normal capital expenditure (both base & enhancement), PPP capital maintenance on on-balance sheet PPP contracts and residual interest on off-balance sheet PPP contracts.

As DfI have adopted IFRS as an accounting framework, the available PE will also be stated on an IFRS basis.

In the reporting year, the PE capital DEL budgeted at the beginning of the year was £282.0m including £23.0m LWWP. This was £4.0m less than that assumed within the PC21 FD, after revised indexation is taken into account. This is set out in the table below and shows that this £4.0m reduction in capital DEL from the PC21 FD is equivalent to a £3.1m reduction in gross capital expenditure, once other capital allocations are taken into account.

	PC21 Final Determination (re-indexed)	Budget	Variance
	2022-23	2022-23	2022-23
	£M	£M	£M
PE Capital DEL Acquisitions	285.1	282.0	3.1
Alpha PPP maintenance / capex	(3.4)	(1.9)	(1.5)
Residual interest in off balance sheet PPP	(4.1)	(3.9)	(0.3)
Capital grants and contributions	15.1	12.1	+3.0
Capital grants and contributions transferred to deferred credits	(1.8)	(1.5)	(0.3)
NI Water gross capital budget	290.8	286.8	+4.0

In terms of movements in funding within the current year, NI Water's 'Capital DEL Acquisitions' budget was increased by £8.263m over the year. This included additional

allocations for energy storage, SBRI funding, additional funding from DfE for pump optimisation & electric vehicles and some additional LWWP funding.

The PE capital DEL funding (DEL Acquisitions) at the end of the reporting year is as follows:

	2022/23
	£m
PE Capital DEL budget at start of year	282.000
Energy storage (OMR)	4.700
SBRI funding	0.600
Additional LWWP funding (Belfast SDIP Integrated Drainage Modelling)	0.673
DfE pump optimisation (OMR)	1.490
DfE electric vehicles (OMR)	0.800
Grossed up for disposals	0.013
Final Dfl budget available at end of year	290.276

Taking into account these and other movements, gross capital expenditure available to NI Water was £295.6m, £4.8m higher than assumed in the PC21 FD.

	PC21 Final Determination	Final Outturn	Variance
	2022-23	2022-23	2022-23
	£M	£M	£M
PE Capital DEL Acquisitions	285.1	290.1	(5.0)
Alpha PPP maintenance / capex	(3.4)	(1.8)	(1.6)
Residual interest in off balance sheet PPP	(4.2)	(3.9)	(0.3)
Other adjustments	-	(0.1)	+0.1
Capital grants and contributions	15.1	12.8	+2.3
Capital grants and contributions transferred to deferred credits	(1.8)	(1.3)	(0.5)
NI Water gross capital budget	290.8	295.8	(5.0)

Higher RPI inflation than that assumed in the PC21 FD has resulted in an increase in funding required to deliver the programme. This has been reflected in the FD numbers above with the Capital DEL figure being £33.9m higher than published in the FD.

Line 2 – PE capital budget used

Represents total 'Capital DEL Acquisitions' calculated as line 9 minus the sum of lines 3 – 8 inclusive.

Taking into account the additional budget transfers received, actual spend was in line with available 'Capital DEL Acquisitions'.

Note the PE capital used has been agreed to our 2022/23 'provisional outturn' return submitted to Dfl on the 19th April 2023. The 2022/23 'final outturn' will be provided to Dfl

mid-July. At this time we are not aware of any potential change to the provisional figure we have used but will update the Utility Regulator of any change post submission.

Line 3 – Alpha PPP maintenance

Following the Alpha purchase in 2017/18, actual capital expenditure by the Alpha group of companies now scores as Capital DEL under Public Expenditure.

The amounts reported within line 3 includes £1.816 m capital expenditure incurred directly by NI Water Alpha Ltd.

Line 4 – Residual interest in off-balance sheet PPP

This represents the element of the Omega and Kinnegar PPP unitary payments which is allocated against residual interest in the relevant year.

Although the Regulatory Accounts are now presented in IFRS, for government reporting purposes, Omega & Kinnegar remain off-balance sheet.

Each year a portion of the unitary charge is debited against a 'residual interest asset' on the balance sheet with the aim of building up an asset which can be transferred to NI Water at end of the PPP contract term. The value of this asset would equal the forecast residual value of the relevant assets at the time of transfer.

The breakdown between Omega & Kinnegar is shown below.

	2022/23
Kinnegar Residual Interest	-
Omega Residual Interest	
Total	

Due to the move to IFRS, entries to this line no longer reconcile directly to Table 42. This is due to Omega and Kinnegar remaining off balance sheet for Government reporting.

Line 5 – IFRS infrastructure renewals charge adjustment

No longer required as this adjustment is included within gross capital expenditure within Table 36.

Line 6 – Further adjustments

Line 6b shows an unreconciled difference of -£0.051m which is deemed immaterial and has not been looked into further. We are content with the reconciliation between reported capital DEL and capital expenditure as reported in our statutory accounts.

Line 7 – Capital grants and contributions

This represents the total of capital grants and contributions received in nominal prices.

Entries to this line are consistent with Table 37 line 17.

Line 8 – Capital grants and contributions transferred to deferred credits

An element of the capital grants and contributions received is assumed to relate to non-infrastructure assets with an associated useful life. Adoption of the financial 'matching' principle, i.e. the process of linking revenue to associated costs means that we must match

the amortisation of the contribution against the depreciation charge on the assets over their useful economic life.

We currently assume 30% of infrastructure charges relate to non-infrastructure and is transferred to a deferred capital contribution account and released to the P&L over a 20 year period.

Entries to this line are consistent with Table 37 line 18.

Line 9 – NI Water gross capital expenditure

Represents gross capital expenditure as per Table 36. This line now incorporates the IFRS repairs adjustment which was previously reported in Table 35 Line 5.

Table 36 - Capital Investment - Gross Capital Investment Summary

Refer to Chapter 40 for detailed commentary on this table. There are no reconciling items to report.

Table 36a – Capital Investment – Expenditure comparison by service and purpose

Refer to Chapter 40 for detailed commentary on this table. There are no reconciling items to report.

NORTHERN IRELAND WATER LIMITED ANNUAL INFORMATION RETURN

ANNUAL INFORMATION RETURN TABLE 37 FINANCIAL MEASURES
CAPITAL INVESTMENT CAPITAL GRANTS AND CONTRIBUTIONS

DESCRIPTION	UNITS	DP	1	2	3	4	5	6	7	8	9	10	11	12
			2015 16	2016 17	2017 18	2018 19	2019 20	2020 21	2021 22	2022 23	2023 24	2024 25	2025 26	2026 27
A Water Service Maintenance grants and contributions														
1 MNI - grants and contributions.	€m	3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
2 Infrastructure renewals grants and contributions.	€m	3	0.203	0.067	0.078	0.146	0.101	0.052	0.345	0.007				
3 Total maintenance grants and contributions	€m	3	0.203	0.067	0.078	0.146	0.101	0.052	0.345	0.007				
B Water Service Enhancement grants and contributions														
4 Infrastructure charge receipts - new connections	€m	3	1.800	2.284	2.561	2.446	2.589	2.328	2.588	2.356				
5 Enhancement requisitions grants and contributions	€m	3	2.553	4.038	3.339	4.575	3.722	3.140	3.750	3.643				
6 Other categories of cap tal grants and contributions to be added by NI Water	€m	3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000				
7 Total enhancement capital grants and contributions	€m	3	4.353	6.322	5.900	7.021	6.310	5.467	6.338	5.999				
C Water Service Deferred credits														
8 Capital grants and contributions transferred to deferred credits	€m	3	0.545	0.685	0.768	0.734	0.777	0.698	0.776	0.707				
D Sewerage Service Maintenance grants and contributions														
9 MNI - grants and contributions.	€m	3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000				
10 Infrastructure renewals grants and contributions.	€m	3	0.000	0.000	0.014	0.003	0.010	0.102	0.008	0.001				
11 Total maintenance grants and contributions	€m	3	0.000	0.000	0.014	0.003	0.010	0.102	0.008	0.001				
E Sewerage Service Enhancement grants and contributions														
12 Infrastructure charge receipts - new connections	€m	3	1.515	1.997	2.280	2.065	2.269	1.988	2.213	2.048				
13 Enhancement requisitions grants and contributions	€m	3	1.914	3.164	5.737	4.770	17.279	6.787	5.168	4.726				
14 Other categories of cap tal grants and contributions to be added by NI Water	€m	3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000				
15 Total enhancement capital grants and contributions	€m	3	3.429	5.161	8.017	6.835	19.548	8.776	7.381	6.774				
F Sewerage Service Deferred credits														
16 Capital grants and contributions transferred to deferred credits	€m	3	0.454	0.599	0.684	0.620	0.681	0.597	0.664	0.614				
G Totals for the Water and Sewerage Services														
17 Total enhancement capital grants and contributions	€m	3	7.985	11.550	14.009	14.005	25.970	14.396	14.072	12.781				
18 Total capital grants and contributions transferred to deferred credit	€m	3	0.999	1.284	1.452	1.354	1.457	1.295	1.440	1.321				

Table 37 – Capital Investment - Capital Grants and Contributions

Line 1 – Water service MNI – grants and contributions

Nil for 2022-23.

Line 2 – Water service maintenance grants and contributions

This line shows £0.007m and represents contributions from developers towards the cost of watermains diversions.

Line 4 – Water service infrastructure charge receipts - new connections

This line shows £2.356m and represents the receipts from developers for water infrastructure charges. This is stated gross prior to accounting for the element that is deemed to contribute to non-infrastructure expenditure.

Line 5 – Water service enhancement requisitions, grants and contributions

This line can be summarised as follows:

New water connections	£ 3.159m
Water requisitions	£ 0.415m
Grants	<u>£ 0.069m</u>
Total Line 5	£ 3.643m

Line 6 – Water service other categories of capital grants and contributions

Nil for 2022-23.

Line 8 – Water service deferred credits

This line shows £0.707m and represents the element of the receipts from developers for water infrastructure charges that are deemed to contribute to non-infrastructure expenditure.

This is calculated as follows:

Line 4 £2.356m x 30% = £0.707m

The 30% used in this calculation is based on an estimate of the future capital expenditure that relates to non-infrastructure growth.

Line 9 – Sewerage service MNI – grants and contributions

Nil for 2022-23.

Line 10 – Sewerage service - maintenance grants and contributions

This line shows £0.001m and represents contributions from developers towards the cost of realignment of sewers.

Line 12 – Sewerage service - Infrastructure charge receipts - new connections

This line shows £2.048m and represents the receipts from developers for sewerage infrastructure charges. This is stated gross prior to accounting for the element that is deemed to contribute to non-infrastructure expenditure.

Line 13 – Sewerage service - enhancement requisitions, grants and contributions

This can be summarised as follows:

New sewerage connections	£ 1.822m
Sewerage requisitions	£ 1.735m
Sewers for adoption –application fees	£ 0.910m
Grants	<u>£ 0.259m</u>
Total Line 13	£ 4.726m

Line 14 – Sewerage service - other categories of capital grants and contributions

Nil for 2022-23.

Line 16 – Sewerage service deferred credits

This line shows £0.614m and represents the element of the receipts from developers for sewerage infrastructure charges that are deemed to contribute to non-infrastructure expenditure.

This is calculated as follows: Line 12 £2.048m x 30% = £0.614m

The 30% used in this calculation is based on an estimate of the future capital expenditure that relates to non-infrastructure growth.

Comparison of 2022-2023 to PC21*

The following table shows a comparison of the actual contributions for 2022-23 compared to PC21.

	2022-23	2022-23	2022-23	2022-23
	Actual	PC21	Variance	Variance
	£m	£m	£m	%
Water				
Infrastructure – base	0.0	0.0	0.0	N/A
Infrastructure charges - gross	2.4	3.3	(0.9)	(27.3%)
Connections	3.2	3.7	(0.5)	(13.5%)
Requisitions	0.4	0.4	0.0	N/A
Grants	0.1	0.0	0.1	N/A
Total	6.1	7.4	(1.3)	(17.6%)
Included in the gross Infrastructure charges above the non-infrastructure element - 30%	0.7	1.0	(0.3)	(30.0%)
Sewerage				
Infrastructure – base	0.0	0.0	0.0	N/A
Infrastructure charges – gross	2.0	2.7	(0.7)	(25.9%)
Connections	1.8	2.1	(0.3)	(14.3%)
Requisitions	1.7	1.4	0.3	21.4%
Sewers for adoption	0.9	1.4	(0.5)	(35.7%)
Grants	0.3	0.1	0.2	200.0%
Total	6.7	7.7	(1.0)	(13.0%)
Included in the gross Infrastructure charges above the non-infrastructure element - 30%	0.6	0.8	(0.2)	(25.0%)
Total contributions	12.8	15.1	(2.3)	(15.2%)
Which includes: non-infrastructure contributions	1.3	1.8	(0.5)	(27.8%)

*This table is rounded to one decimal place to reflect the presentation of these figures in the PC21 submission.

Note: no base infrastructure contributions were assumed in PC21. The grants relate to STT & SWELL Interreg & no other grants were assumed.

NORTHERN IRELAND WATER LIMITED ANNUAL INFORMATION RETURN

ANNUAL INFORMATION RETURN TABLE 38 FINANCIAL MEASURES
CAPITAL INVESTMENT ADDITIONAL OPEX FROM CAPEX

DESCRIPTION	UNITS	DP	1	2	3	4	5	6	7	8	9
			2018 19	2019 20	2020 21	2021 22	2022 23	2023 24	2024 25	2025 26	2026 27
A OPEX from CAPEX											
1 Additional OPEX arising from Water Service projects	£m	3	0.029	0.000	-0.012	0.638	0.638				
2 Additional OPEX arising from Sewerage Service projects	£m	3	0.065	-0.024	-0.171	0.142	0.142				
3 Total additional OPEX	£m	3	0.094	-0.024	-0.183	0.780	0.780				

Table 38 - Capital investment - additional opex from capex

A list of sites with CAR IDs is obtained and the Opex costs for 2022/23 are calculated for these sites through various reports.

The Opex from Capex costs have been calculated by taking the difference between the total 2022/23 costs and the 2021/22 costs.

Line 1 Additional OPEX arising from water service projects

Derg Treatability Improvements and WTW MCPA PEO and Dorisland WTW Treatability Recommended Improvements were commissioned in 2022/23 with increased Opex costs of £0.6M, mainly Power Costs. The increase in Power costs also reflects the increase in global energy prices during 2022/23.

Line 2 - Additional OPEX arising from sewerage service projects

The total of the sewage pumping stations and the wastewater treatment works have been used to populate Line 2 in Table 38 and for 2022/23 there is an increase of costs of £0.142M. This is mainly due to work done at various sites including Warrenpoint WWTW and Ballygowan WWTW

Line 3 - Total additional OPEX

The total figure is an increase of costs of £0.78M.

Project Information		Financial Summary		Operational Data		Resource Allocation		Risk Assessment		Compliance & Reporting	
ID	Name	Budget	Actual	Status	Start	End	Team Lead	Priority	Score	Category	Notes
001	Project Alpha	100000	95000	Completed	2023-01-01	2023-03-31	J. Doe	High	9.5	IT	Successful launch.
002	Project Beta	200000	210000	On Track	2023-04-01	2023-06-30	A. Smith	Medium	8.2	Marketing	Minor budget variance.
003	Project Gamma	150000	140000	Delayed	2023-05-01	2023-07-31	M. Johnson	Low	6.8	Operations	Resource shortage.
004	Project Delta	300000	290000	On Track	2023-08-01	2023-10-31	K. Lee	High	8.9	R&D	Key milestones met.
005	Project Epsilon	180000	175000	On Track	2023-09-01	2023-11-30	S. Kim	Medium	7.5	HR	Good progress.
006	Project Zeta	250000	260000	On Track	2023-10-01	2024-01-31	D. Brown	High	8.7	Finance	Scope creep managed.
007	Project Eta	120000	115000	On Track	2023-11-01	2024-02-28	L. Green	Low	7.1	Legal	Review in progress.
008	Project Theta	350000	340000	On Track	2024-01-01	2024-04-30	R. White	High	9.1	IT	Strategic initiative.
009	Project Iota	220000	210000	On Track	2024-02-01	2024-05-31	C. Black	Medium	7.9	Marketing	Target audience defined.
010	Project Kappa	170000	165000	On Track	2024-03-01	2024-06-30	H. Gray	Low	7.3	Operations	Process optimization.
011	Project Lambda	280000	270000	On Track	2024-04-01	2024-07-31	B. Red	High	8.6	R&D	Patent application.
012	Project Mu	190000	185000	On Track	2024-05-01	2024-08-31	N. Blue	Medium	7.7	HR	Recruitment drive.
013	Project Nu	320000	310000	On Track	2024-06-01	2024-09-30	V. Purple	High	8.8	Finance	Investment analysis.
014	Project Xi	140000	135000	On Track	2024-07-01	2024-10-31	J. Yellow	Low	7.0	Legal	Contract review.
015	Project Omicron	260000	250000	On Track	2024-08-01	2024-11-30	M. Pink	Medium	8.0	Marketing	Campaign launch.
016	Project Pi	160000	155000	On Track	2024-09-01	2025-01-31	P. Orange	Low	7.2	Operations	Supply chain review.
017	Project Rho	340000	330000	On Track	2024-10-01	2025-03-31	L. Green	High	9.0	R&D	Prototype testing.
018	Project Sigma	210000	205000	On Track	2024-11-01	2025-04-30	K. Blue	Medium	7.8	Marketing	Brand refresh.
019	Project Tau	180000	175000	On Track	2025-01-01	2025-04-30	S. Purple	Low	7.4	Operations	Automation pilot.
020	Project Upsilon	290000	280000	On Track	2025-02-01	2025-05-31	D. Orange	High	8.5	Finance	Market expansion.
021	Project Phi	150000	145000	On Track	2025-03-01	2025-06-30	F. Green	Medium	7.6	Legal	Regulatory update.
022	Project Chi	310000	300000	On Track	2025-04-01	2025-07-31	G. Blue	High	8.9	R&D	AI integration.
023	Project Psi	200000	195000	On Track	2025-05-01	2025-08-31	T. Purple	Medium	7.9	Marketing	Partnership launch.
024	Project Omega	170000	165000	On Track	2025-06-01	2025-09-30	H. Orange	Low	7.3	Operations	Efficiency audit.
025	Project A	330000	320000	On Track	2025-07-01	2025-10-31	J. Green	High	9.2	R&D	Next-gen platform.
026	Project B	230000	225000	On Track	2025-08-01	2025-11-30	L. Blue	Medium	8.1	Marketing	Global rollout.
027	Project C	190000	185000	On Track	2025-09-01	2026-01-31	M. Purple	Low	7.5	Operations	Process redesign.
028	Project D	360000	350000	On Track	2025-10-01	2026-03-31	N. Orange	High	9.3	Finance	Strategic pivot.
029	Project E	240000	235000	On Track	2025-11-01	2026-04-30	O. Green	Medium	8.3	Marketing	Brand extension.
030	Project F	160000	155000	On Track	2026-01-01	2026-04-30	P. Blue	Low	7.2	Operations	Supply chain divers.
031	Project G	300000	290000	On Track	2026-02-01	2026-05-31	Q. Purple	High	8.7	R&D	Quantum research.
032	Project H	210000	205000	On Track	2026-03-01	2026-06-30	R. Orange	Medium	7.8	Marketing	Digital transformation.
033	Project I	180000	175000	On Track	2026-04-01	2026-07-31	S. Green	Low	7.4	Operations	Automation scale.
034	Project J	320000	310000	On Track	2026-05-01	2026-08-31	T. Blue	High	9.0	Finance	ESG integration.
035	Project K	220000	215000	On Track	2026-06-01	2026-09-30	U. Purple	Medium	8.0	Marketing	Customer experience.
036	Project L	150000	145000	On Track	2026-07-01	2026-10-31	V. Orange	Low	7.0	Operations	Process automation.
037	Project M	350000	340000	On Track	2026-08-01	2026-11-30	W. Green	High	9.1	R&D	Space exploration.
038	Project N	250000	245000	On Track	2026-09-01	2027-01-31	X. Blue	Medium	8.2	Marketing	Brand refresh.
039	Project O	170000	165000	On Track	2026-10-01	2027-03-31	Y. Purple	Low	7.3	Operations	Supply chain review.
040	Project P	300000	290000	On Track	2026-11-01	2027-04-30	Z. Orange	High	8.6	Finance	Market expansion.
041	Project Q	200000	195000	On Track	2027-01-01	2027-04-30	AA. Green	Medium	7.9	Marketing	Partnership launch.
042	Project R	160000	155000	On Track	2027-02-01	2027-05-31	AB. Blue	Low	7.2	Operations	Efficiency audit.
043	Project S	340000	330000	On Track	2027-03-01	2027-06-30	AC. Purple	High	9.0	R&D	AI integration.
044	Project T	230000	225000	On Track	2027-04-01	2027-07-31	AD. Orange	Medium	8.1	Marketing	Digital transformation.
045	Project U	190000	185000	On Track	2027-05-01	2027-08-31	AE. Green	Low	7.5	Operations	Automation pilot.
046	Project V	310000	300000	On Track	2027-06-01	2027-09-30	AF. Blue	High	8.9	Finance	Strategic pivot.
047	Project W	210000	205000	On Track	2027-07-01	2027-10-31	AG. Purple	Medium	7.8	Marketing	Brand extension.
048	Project X	180000	175000	On Track	2027-08-01	2028-01-31	AH. Orange	Low	7.4	Operations	Process redesign.
049	Project Y	330000	320000	On Track	2027-09-01	2028-02-28	AI. Green	High	9.2	R&D	Next-gen platform.
050	Project Z	240000	235000	On Track	2027-10-01	2028-03-31	AJ. Blue	Medium	8.3	Marketing	Global rollout.
051	Project AA	160000	155000	On Track	2027-11-01	2028-04-30	AK. Purple	Low	7.2	Operations	Supply chain divers.
052	Project AB	300000	290000	On Track	2028-01-01	2028-04-30	AL. Orange	High	8.6	Finance	Market expansion.
053	Project AC	200000	195000	On Track	2028-02-01	2028-05-31	AM. Green	Medium	7.9	Marketing	Partnership launch.
054	Project AD	170000	165000	On Track	2028-03-01	2028-06-30	AN. Blue	Low	7.3	Operations	Efficiency audit.
055	Project AE	350000	340000	On Track	2028-04-01	2028-07-31	AO. Purple	High	9.1	R&D	AI integration.
056	Project AF	250000	245000	On Track	2028-05-01	2028-08-31	AP. Orange	Medium	8.2	Marketing	Digital transformation.
057	Project AG	180000	175000	On Track	2028-06-01	2028-09-30	AQ. Green	Low	7.4	Operations	Automation scale.
058	Project AH	320000	310000	On Track	2028-07-01	2028-10-31	AR. Blue	High	9.0	Finance	Strategic pivot.
059	Project AI	220000	215000	On Track	2028-08-01	2028-11-30	AS. Purple	Medium	8.0	Marketing	Brand refresh.
060	Project AJ	150000	145000	On Track	2028-09-01	2029-01-31	AT. Orange	Low	7.0	Operations	Supply chain review.
061	Project AK	300000	290000	On Track	2028-10-01	2029-03-31	AU. Green	High	8.6	Finance	Market expansion.
062	Project AL	200000	195000	On Track	2028-11-01	2029-04-30	AV. Blue	Medium	7.9	Marketing	Partnership launch.
063	Project AM	160000	155000	On Track	2029-01-01	2029-04-30	AW. Purple	Low	7.2	Operations	Efficiency audit.
064	Project AN	340000	330000	On Track	2029-02-01	2029-05-31	AX. Orange	High	9.0	R&D	AI integration.
065	Project AO	230000	225000	On Track	2029-03-01	2029-06-30	AY. Green	Medium	8.1	Marketing	Digital transformation.
066	Project AP	190000	185000	On Track	2029-04-01	2029-07-31	AZ. Blue	Low	7.5	Operations	Automation pilot.
067	Project AQ	310000	300000	On Track	2029-05-01	2029-08-31	BA. Purple	High	8.9	Finance	Strategic pivot.
068	Project AR	210000	205000	On Track	2029-06-01	2029-09-30	BB. Orange	Medium	7.8	Marketing	Brand extension.
069	Project AS	180000	175000	On Track	2029-07-01	2029-10-31	BC. Green	Low	7.4	Operations	Process redesign.
070	Project AT	330000	320000	On Track	2029-08-01	2029-11-30	BD. Blue	High	9.2	R&D	Next-gen platform.
071	Project AU	240000	235000	On Track	2029-09-01	2030-01-31	BE. Purple	Medium	8.3	Marketing	Global rollout.
072	Project AV	160000	155000	On Track	2029-10-01	2030-03-31	BF. Orange	Low	7.2	Operations	Supply chain divers.
073	Project AW	300000	290000	On Track	2029-11-01	2030-04-30	BG. Green	High	8.6	Finance	Market expansion.
074	Project AX	200000	195000	On Track	2030-01-01	2030-04-30	BH. Blue	Medium	7.9	Marketing	Partnership launch.
075	Project AY	170000	165000	On Track	2030-02-01	2030-05-31	BI. Purple	Low	7.3	Operations	Efficiency audit.
076	Project AZ	350000	340000	On Track	2030-03-01	2030-06-30	BJ. Orange	High	9.1	R&D	AI integration.
077	Project BA	250000	245000	On Track	2030-04-01	2030-07-31	BK. Green	Medium	8.2	Marketing	Digital transformation.
078	Project BB	180000	175000	On Track	2030-05-01	2030-08-31	BL. Blue	Low	7.4	Operations	Automation scale.
079	Project BC	320000	310000	On Track	2030-06-01	2030-09-30	BM. Purple	High	9.0	Finance	Strategic pivot.
080	Project BD	220000	215000	On Track	2030-07-01	2030-10-31	BN. Orange	Medium	8.0	Marketing	Brand refresh.
081	Project BE	150000	145000	On Track	2030-08-01	2031-01-31	BO. Green	Low	7.0	Operations	Supply chain review.
082	Project BF	300000	290000	On Track	2030-09-01	2031-02-28	BP. Blue	High	8.6	Finance	Market expansion.
083	Project BG	200000	195000	On Track	2030-10-01	2031-03-31	BQ. Purple	Medium	7.9	Marketing	Partnership launch.
084	Project BH	160000	155000	On Track	2030-11-01	2031-04-30	BR. Orange	Low	7.2	Operations	Efficiency audit.
085	Project BI	340000	330000	On Track	2031-01-01	2031-04-30	BS. Green	High	9.0	R&D	AI integration.
086	Project BJ	230000	225000	On Track	2031-02-01	2031-05-31	BT. Blue	Medium	8.1	Marketing	Digital transformation.
087	Project BK	190000	185000	On Track	2031-03-01	2031-06-30	BU. Purple	Low	7.5	Operations	Automation pilot.
088	Project BL	310000	300000	On Track	2031-04-01	2031-07-31	BV. Orange	High	8.9	Finance	Strategic pivot.
089	Project BM	210000	205000	On Track	2031-05-01	2031-08-31	BW. Green	Medium	7.8	Marketing	Brand extension.
090	Project BN	180000	175000	On Track	2031-06-01	2031-09-30	BX. Blue	Low	7.4	Operations	Process redesign.
091	Project BO	330000	320000	On Track	2031-07-01	2031-10-31	BY. Purple	High	9.2	R&D	Next-gen platform.
092	Project BP	240000	235000	On Track	2031-08-01	2031-11-30	BZ. Orange	Medium	8.3	Marketing	Global rollout.
093	Project BQ	160000	155000	On Track	2031-09-01	2032-01-31	CA. Green	Low	7.2	Operations	Supply chain divers.
094	Project BR	300000	290000	On Track	2031-10-01	2032-03-31	CB. Blue	High	8.6	Finance	Market expansion.
095	Project BS	200000	195000	On Track	2031-11-01	2032-04-30	CC. Purple				

Date		Description		Debit		Credit		Balance		Total		Total		Total		Total		Total		Total	
Year	Month	Day	Particulars	Rs.	Paise	Rs.	Paise	Rs.	Paise	Rs.	Paise	Rs.	Paise	Rs.	Paise	Rs.	Paise	Rs.	Paise	Rs.	Paise
1920	12	31	Balance																		
1921	1	1	By Balance																		
1921	1	2	To Cash	100	00																
1921	1	3	To Cash	200	00																
1921	1	4	To Cash	300	00																
1921	1	5	To Cash	400	00																
1921	1	6	To Cash	500	00																
1921	1	7	To Cash	600	00																
1921	1	8	To Cash	700	00																
1921	1	9	To Cash	800	00																
1921	1	10	To Cash	900	00																
1921	1	11	To Cash	1000	00																
1921	1	12	To Cash	1100	00																
1921	1	13	To Cash	1200	00																
1921	1	14	To Cash	1300	00																
1921	1	15	To Cash	1400	00																
1921	1	16	To Cash	1500	00																
1921	1	17	To Cash	1600	00																
1921	1	18	To Cash	1700	00																
1921	1	19	To Cash	1800	00																
1921	1	20	To Cash	1900	00																
1921	1	21	To Cash	2000	00																
1921	1	22	To Cash	2100	00																
1921	1	23	To Cash	2200	00																
1921	1	24	To Cash	2300	00																
1921	1	25	To Cash	2400	00																
1921	1	26	To Cash	2500	00																
1921	1	27	To Cash	2600	00																
1921	1	28	To Cash	2700	00																
1921	1	29	To Cash	2800	00																
1921	1	30	To Cash	2900	00																
1921	1	31	To Cash	3000	00																
1921	2	1	To Cash	3100	00																
1921	2	2	To Cash	3200	00																
1921	2	3	To Cash	3300	00																
1921	2	4	To Cash	3400	00																
1921	2	5	To Cash	3500	00																
1921	2	6	To Cash	3600	00																
1921	2	7	To Cash	3700	00																
1921	2	8	To Cash	3800	00																
1921	2	9	To Cash	3900	00																
1921	2	10	To Cash	4000	00																
1921	2	11	To Cash	4100	00																
1921	2	12	To Cash	4200	00																
1921	2	13	To Cash	4300	00																
1921	2	14	To Cash	4400	00																
1921	2	15	To Cash	4500	00																
1921	2	16	To Cash	4600	00																
1921	2	17	To Cash	4700	00																
1921	2	18	To Cash	4800	00																
1921	2	19	To Cash	4900	00																
1921	2	20	To Cash	5000	00																
1921	2	21	To Cash	5100	00																
1921	2	22	To Cash	5200	00																
1921	2	23	To Cash	5300	00																
1921	2	24	To Cash	5400	00																
1921	2	25	To Cash	5500	00																
1921	2	26	To Cash	5600	00																
1921	2	27	To Cash	5700	00																
1921	2	28	To Cash	5800	00																
1921	2	29	To Cash	5900	00																
1921	2	30	To Cash	6000	00																
1921	2	31	To Cash	6100	00																
1922	1	1	To Cash	6200	00																
1922	1	2	To Cash	6300	00																
1922	1	3	To Cash	6400	00																
1922	1	4	To Cash	6500	00																
1922	1	5	To Cash	6600	00																
1922	1	6	To Cash	6700	00																
1922	1	7	To Cash	6800	00																
1922	1	8	To Cash	6900	00																
1922	1	9	To Cash	7000	00																
1922	1	10	To Cash	7100	00																
1922	1	11	To Cash	7200	00																
1922	1	12	To Cash	7300	00																
1922	1	13	To Cash	7400	00																
1922	1	14	To Cash	7500	00																
1922	1	15	To Cash	7600	00																
1922	1	16	To Cash	7700	00																
1922	1	17	To Cash	7800	00																
1922	1	18	To Cash	7900	00																
1922	1	19	To Cash	8000	00																
1922	1	20	To Cash	8100	00																
1922	1	21	To Cash	8200	00																
1922	1	22	To Cash	8300	00																
1922	1	23	To Cash	8400	00																
1922	1	24	To Cash	8500	00																
1922	1	25	To Cash	8600	00																
1922	1	26	To Cash	8700	00																

Table 40 – Capital Investment Monitoring (CIM) Summary Report

Introduction

This chapter provides a consolidated report on Capital investment which draws on Chapters 30, 32, 35, 26, 36a and associated tables.

PPP

A PPP expenditure of [REDACTED] has been reported in these tables. £0.087 of this is attributed to Cap Sals.

There was no Capital spend in 2022/23 relating to PPP that is not included within the unitary charge payments. In relation to Capital additions the only Capital not included in this table is the PPP Alpha Capital maintenance charge of [REDACTED]

Capital investment driver allocation (Service categorisation and purpose allocation)

The Capital Investment Driver Allocation (CIDA) methodology has remained consistent as per recent PC15 / PC21 years. NI Water captures Service Categorisation, Life Categories (as reported in Table 34) and Purpose Allocation within our CIDA data capture. This data is captured within CPMR at project level and used for CIM (Table 40) and the other related AIR tables.

Based upon PC21 query responses on CIDA allocation NI Water have revised the CIDA allocation manual to reflect the revisions. These are being integrated into the capital projects. A CIDA training programme should be delivered to ensure project managers and consultants, maintain an understanding of the CIDA allocation process. This will enable new staff to be trained and current staff to have a refresher.

No apportionment has taken place during the analysis and table population stage as this was completed by Project Managers at the initiation of the project and reviewed at appropriate gateways for EP projects.

During 2022/23 all CIM (Table 40) information has been reported directly from CPMR and P6. For the related AIR Tables M & G spend has been reported from CPMR, but Operational Capital has had to be analysed manually as per previous years as the data on CPMR is not in a format that allows for robust reporting. Further refinements have been implemented to allow for more automation for the completion of the tables. As a result the same process used in AIR 22 has been adopted for AIR 23.

Assets Adopted at Nil Cost

Sewer adoptions paid by third parties are included in column 4, line 7 of Table 32 within Sewerage infrastructure enhancements. Sewerage Pumping Stations paid by third parties are included in Col 5, line 12 within Sewerage non infrastructure enhancements.

All of the investment reported in block D of Table 36 is reported as 'Supply Demand Balance: New Development'.

The calculation of gross asset valuation for adopted sewerage assets is based on the unit costs derived from NI Water sewer framework rates.

The unit costs are applied by diameter banding and total lengths laid. The costs include pipe laying, pipe supply, laterals, manholes and compensation.

- The data reported in this table reconciles to the other AIR Tables.
- The table has been populated following the column definitions.
- Capitalised Salaries have been allocated by examining each of the 3 main investment areas as follows:
 - Capital works Programme
 - Management and General
 - Operations Capital

The total Capitalised Salaries and overheads were pro-rated against each project on the CIM to arrive at a Salaries and overheads allocation for the single line on the CIM (Table 40) using the same method as applied in AIR 21.
- The variance between Table 40 (Q4 CIM) and other associated AIR tables is reported in Chapter 30. The main reason for variance is on complex projects which contain a blend of infra and non-infra as well as a blend of purpose allocations which does not allow for creating a robust 16 component summary. The AIR table's data is more reliable than table 40 for accuracy.

Total Asset Additions reconciliations

NI Water moved to IFRS accounting from GAAP in 2018/19

- Total asset additions – Water Service – Check to Table 25 line 5 col 4.
For AIR 21 the reported numbers in these two tables are as follows:
Table 25 – £133.953m
Table 36 – £132.680m

The main variances in the above two figures are explained as follows:

- a) PPP Alpha Capital maintenance is not included in Table 36
 - b) No decapitalised projects in 2022/23
 - c) An element of Capital Interest is included in table 25
- Total asset additions – Sewerage Service – Check to Table 25 line 5 Col 8.
For AIR 21 the reported numbers in these two tables are as follows:
Table 25 – £163.182m
Table 36 – £163.190m

The main variances in the above two figures are explained as follows:

- d) PPP Omega Capital Maintenance was not included in Table 36
- e) No decapitalised projects in 2022/23
- f) An element of Capital Interest is included in table 25

Note: NI Water has complied with the column definitions in respect of the baseline and current actual or projected milestone dates in Table 40. The milestones dates are relevant, sequential and relate to the PC21 outputs.

Expenditure to reduce leakage

The Table 1 below provides a breakdown of the leakage expenditure in 2022/23. This includes the purpose allocations which have followed the principle as set out in PC21 Final Determination.

It should be noted that the figures reported include Leakage repair costs. These are completed by the Water Networks function, but the Leakage and Water Networks are now part of the Water Production Function. The opex costs reported in the table are the total opex costs relating to Leakage. This is comprised of Leakage Function staff costs and leakage repair costs incurred by both the Leakage and Water Network function.

Table 1

Activity	In Year actual spend per category (£m)	Purpose allocation
Leakage detection costs - opex	6.800	OPEX
Leakage repair costs - opex	1.500	OPEX
Leakage detection costs - capex	0.742	Base
Leakage infra replacement repair costs - capex	0.425	Base
Leakage detection equip	0.219	Base
Leakage software upgrades and developments	0.101	Base
New leakage technology	0.332	Base
DMA ¹ studies	1.384	Base
Trunk Main studies	0.060	SDB Growth
DMA optimisation	0.101	SDB Growth
Water balance asset data assessments	0.061	Base
ELL ² reviews	0.053	Base
Pressure Management	0.388	SDB Growth
PRV ³ replacements	0.336	Base
GSM ⁴ Loggers/Meter studies/Meter replacement	2.748	Base
Other	0.045	Base
IFRS Adjustment	-1.376	Base
Total (OPEX)	8.300	
Total (Capex)	5.619	
Total Leakage investment	13.919	

Capital programme variance

The Capital programme for 2022/23 when compared to the PC21 Final Determination has over delivered in the 'Water Service' Programme but under delivered in the 'Sewerage Service'. It is important to note that NI Water will require full funding to deliver the PC21 Final Determination across the price control period.

The main reasons for variance in forecast are as follows:

- a) £22m early investment in SP04 which is currently being compiled into a Change Control submission to the UR.
- b) £19m overage in SP06 relating to increased costs associated with CWTs, these are currently under review by NI Water Cost Managers.
- c) £28m and £34m in SP12 and SP16 which are currently awaiting determination on a large number of schemes from the Scope Uncertainty submissions.
- d) £25m in SP20 which mainly relates to a single project to address H&S concerns and legislative requirements. Should all of this work be deemed necessary then a number of projects in SP20 shall not proceed to accommodate the expenditure.

¹ District Metered Area – zoned area of water distribution network.

² Economic Level of Leakage – assessment of benefits gained from fixing leakage against costs of fixing.

³ Pressure Reducing Valve – used to manage pressure within the infrastructure network.

⁴ Global System for Mobile Communication – used where conventional telemetry/radio systems are not appropriate.

Energy efficiency and renewable energy schemes

A summary of Energy efficiency and renewable energy schemes is included in Annex A at the end of this document.

2022/23 Q4 Capital Investment Monitoring Return (Table 40)**Company Baseline**

A PC21 baseline is included in this Capital Investment Monitoring (CIM) submission. The PC21 capital baseline is a detailed listing of projects and programmes of work, the costs and outputs which have been presented to the Utility Regulator through the Price Control process. The baseline is expressed in 2018/19 prices, post efficiency.

Capital Expenditure Commentary

This submission is completed primarily using CPMR with full reconciliation completed to ORACLE.

The following Table 2 is a summary of CAPEX expenditure in 2022/23 (excluding contributions) at the end of Q4 as per ORACLE and reconciled to the CIM submission shown in money of the day.

Table 2

	£m
Total Gross capital expenditure as per ORACLE	295.346
Capital works programme expenditure	230.841
Operations Capital from CPMR	11.810
M & G capital from CPMR	29.985
Capitalised Salaries and overheads	19.109
Rounding from ORACLE to CAPTRAX/CPMR	3.675
Reconciled Total	295.870

During the period (April 2022 – March 2023) there has been Capital income in the form of Grants and Contributions totalling to £11.141m. This figure is not included on the CIM submission.

Inflation Assumptions

The project costs reported in the 'current actual or projected' portion of the CIM are in current prices. All project costs are captured in nominal prices as no inflation assumptions are applied within CPMR. Capital expenditure within the Final Determination was inflated by RPI which was linked to projections made by the Office for Budgetary Responsibility (OBR) in March 2014. This allowed 3.4% RPI annually through the six year period. Table 3 shows actual RPI in 2021/22 and OBR forecast figures for the years 2022/23 to 2026/27 (based on March 2022 economic and fiscal outlook). This shows an increase in inflation levels from that assumed in the PC21 FD. NI Water continue to monitor the OBR view of RPI.

Table 3 Inflation (RPI) projections

	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27
PC21 FD assumed Indices	302.016	308.354	315.922	324.907	334.540	344.576
	2.57%	2.10%	2.45%	2.84%	2.96%	3.00%
Current actual and projected indices (OBR Mar 2023)	311.158	343.123	355.530	364.006	373.488	383.672
	5.78%	10.27%	3.62%	2.38%	2.60%	2.73%

Reconciliation with Table 36**Table 36 - Water service nominal expenditure**

Gross Capital expenditure - Water Service		T36 £m	CIM £m	Variance £m	Variance %
1	MNI (gross of grants and contributions)	46.270	42.294	-3.977	-9.40
2	Infrastructure renewals expenditure (gross)	34.784	33.005	-1.779	-5.39
3	Capex: Total quality enhancement programme	17.980	18.443	0.463	2.51
4	Capital expenditure - customer service	16.739	16.779	0.040	0.24
5	Capital expenditure - supply demand balance	16.908	22.269	5.361	24.07
6	Gross Capital expenditure - Water Service	132.680	132.788	0.109	0.08

Table 36 - Sewerage service nominal expenditure

Gross Capital expenditure - Sewerage Service		T36 £m	CIM £m	Variance £m	Variance %
7	MNI (gross of grants and contributions)	67.083	61.864	-5.219	-8.44
8	Infrastructure renewals expenditure (gross)	23.775	26.877	3.101	11.54
9	Capex: Total quality enhancement programme	38.669	38.291	-0.378	-0.99
10	Capital expenditure: customer service	13.241	13.729	0.487	3.55
11	Capital expenditure supply demand balance	20.422	22.322	1.899	8.51
12	Gross Capital expenditure - Sewerage Service	163.190	163.082	-0.108	-0.07

The above table shows the comparison between the CIM (Table 40) and Table 36. Assets adopted at NIL cost reported in Table 36 have been excluded from this comparison.

The variances shown arise because the data held for population of the AIR tables have direct links between the asset type, service area and investment driver. Where there are complex projects, this detail is required to provide an accurate analysis of the expenditure. The summary detail on the CIM does not give a full transparency of this detail as the direct link between asset type, service area and investment area is lost but does give a reasonable interpretation of the investment. In addition direct comparison is difficult as Capitalised Salaries and overheads are a single line on the CIM which has had a service allocation and purpose allocation applied based on the rest of the programme. For AIR 23 the Capital salaries and overheads were applied by examining each of the three elements of the programme namely, CWP, M & G and Operations Capital and assigning Salaries and Overheads against each of these programmes before combining into a single line. Whilst still not exact it more closely reflects the way salaries are allocated to individual projects. Within AIR the Capitalised Salaries and overhead information is included within individual project costs.

Sixteen Box Summary**2022/23 Current Actual Projected 16 box summary showing expenditure £m (nominal)**

	Quality Enhancement	Base Service provision	Enhanced service levels	Supply Demand Balance	Totals
Water Infrastructure	4.32	33.00	2.55	11.71	51.57
Water Non-Infrastructure	14.12	42.29	14.23	10.56	81.21
Sewerage Infrastructure	8.80	26.88	7.25	8.44	51.37
Sewerage Non-Infrastructure	29.49	61.86	6.48	13.88	111.71
Totals	56.73	164.04	30.51	44.59	295.87

2022/23 Current Actual Projected 16 box summary in percentages

	Quality Enhancement	Base Service provision	Enhanced service levels	Supply Demand Balance	Totals
Water Infrastructure	1.5%	11.2%	0.9%	4.0%	17.4%
Water Non-Infrastructure	4.8%	14.3%	4.8%	3.6%	27.4%
Sewerage Infrastructure	3.0%	9.1%	2.5%	2.9%	17.4%
Sewerage Non-Infrastructure	10.0%	20.9%	2.2%	4.7%	37.8%
Totals	19.2%	55.4%	10.3%	15.1%	100.0%

2022/23 Baseline 16 box summary showing expenditure £m (2018/19 prices)

	Quality Enhancement	Base Service provision	Enhanced service levels	Supply Demand Balance	Totals
Water Infrastructure	6.06	20.64	7.05	13.37	47.12
Water Non-Infrastructure	4.37	22.70	5.11	1.97	34.14
Sewerage Infrastructure	20.19	19.50	12.46	9.23	61.38
Sewerage Non-Infrastructure	15.92	47.28	9.38	19.40	91.97
Totals	46.53	110.12	34.01	43.96	234.61

2022/23 Baseline Projected 16 box summary in percentages

	Quality Enhancement	Base Service provision	Enhanced service levels	Supply Demand Balance	Totals
Water Infrastructure	2.6%	8.8%	3.0%	5.7%	20.1%
Water Non-Infrastructure	1.9%	9.7%	2.2%	0.8%	14.6%
Sewerage Infrastructure	8.6%	8.3%	5.3%	3.9%	26.2%
Sewerage Non-Infrastructure	6.8%	20.2%	4.0%	8.3%	39.2%
Totals	19.8%	46.9%	14.5%	18.7%	100.0%

**PC21 16 box FD baseline (2018/19 prices): Expenditure across the PC21 programme
£m**

	Quality Enhancement	Base Service provision	Enhanced service levels	Supply Demand Balance	Totals
Water Infrastructure	36.12	116.90	36.46	79.98	269.44
Water Non-Infrastructure	22.65	143.21	45.84	21.33	233.03
Sewerage Infrastructure	231.22	115.12	56.92	56.74	459.99
Sewerage Non-Infrastructure	279.36	311.33	64.70	202.12	857.51
Totals	569.35	686.55	203.92	360.16	1819.98

PC21 16 box summary: Baseline expenditure by percentage across the PC21 programme

	Quality Enhancement	Base Service provision	Enhanced service levels	Supply Demand Balance	Totals
Water Infrastructure	1.98%	6.42%	2.00%	4.39%	14.80%
Water Non-Infrastructure	1.24%	7.87%	2.52%	1.17%	12.80%
Sewerage Infrastructure	12.70%	6.33%	3.13%	3.12%	25.27%
Sewerage Non-Infrastructure	15.35%	17.11%	3.56%	11.11%	47.12%
Totals	31.28%	37.72%	11.20%	19.79%	

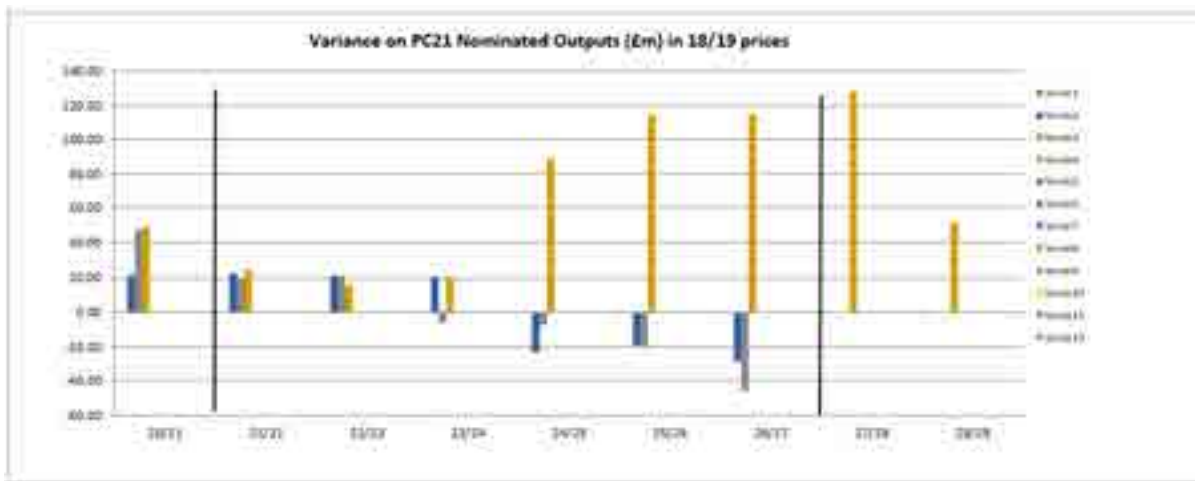
Variance on Nominated Outputs (2018/19 prices)

Figure 1 illustrates the movement in the PC21 Nominated Output projects: this is based on the PC21 FD baseline and assumes a fully funded Final Determination budget. In Year 2, investment on a number of nominated projects was accelerated with a higher than FD budget available.

The current variance across the period is showing as £379.09m however this will be reassessed on an ongoing basis from the MTR determination and adjusted as scope certainty is determined on and projects are re-prioritised accordingly.

The significant variance on the graph is due to the projects being created on the CPMR system and identified as Nominated Outputs for the majority of the PC21 programme.

Figure 1: Variance on Nominated Outputs



CIM summary Table

Code	Title	Baseline £m (2018/19 prices)	Current actual or projected 2022/23 (nominal) £m	Current actual or projected 2022/23 £m (2018/19 prices using latest OBR RPI forecast)
0	Staff Salaries and on-costs	1.76	20.95	16.92
1	Base maintenance (Water)	8.75	15.75	12.73
2	Base maintenance (sewerage)	30.06	36.40	29.41
3	Water resources	4.02	5.95	4.81
4	Water treatment works	3.71	19.01	15.36
5	Water trunk mains	9.49	10.55	8.53
6	Service reservoirs and clear water tanks	0.15	6.39	5.16
7	Service reservoir rehabilitation	2.77	4.03	3.26
8	Water mains rehabilitation	15.70	17.90	14.46
9	Leakage	4.99	4.49	3.62
10	Ops capital Water	8.49	14.99	12.11
12	Sewerage Maintenance, UIDs, Flooding	46.53	35.00	28.28
15	Wastewater treatment (carryover)	0.00	0.00	0.00
16	Wastewater treatment (new starts)	26.18	41.25	33.32
17	Small wastewater treatment works	1.60	2.06	1.67
18	Ops capital Sewerage	11.04	13.21	10.67
19	Meter installation and maintenance	1.92	1.53	1.24
20	Management and general	50.32	31.57	25.50
23	Minor watermain repairs, requisitions, road schemes and public realm	3.77	5.22	4.22
24	Minor sewer repairs, requisitions, road schemes and public realm	4.36	7.11	5.74
97	IFRS Adjustment	0.00	0.00	0.00
98	Additional Outputs Programme	0.00	0.00	0.00
99	PC15 balancing line (Base)	-1.00	2.50	2.02
Total	Excluding additional outputs	234.61	295.87	239.03
Total	Including additional outputs	234.61	295.87	239.03

Nominated Outputs

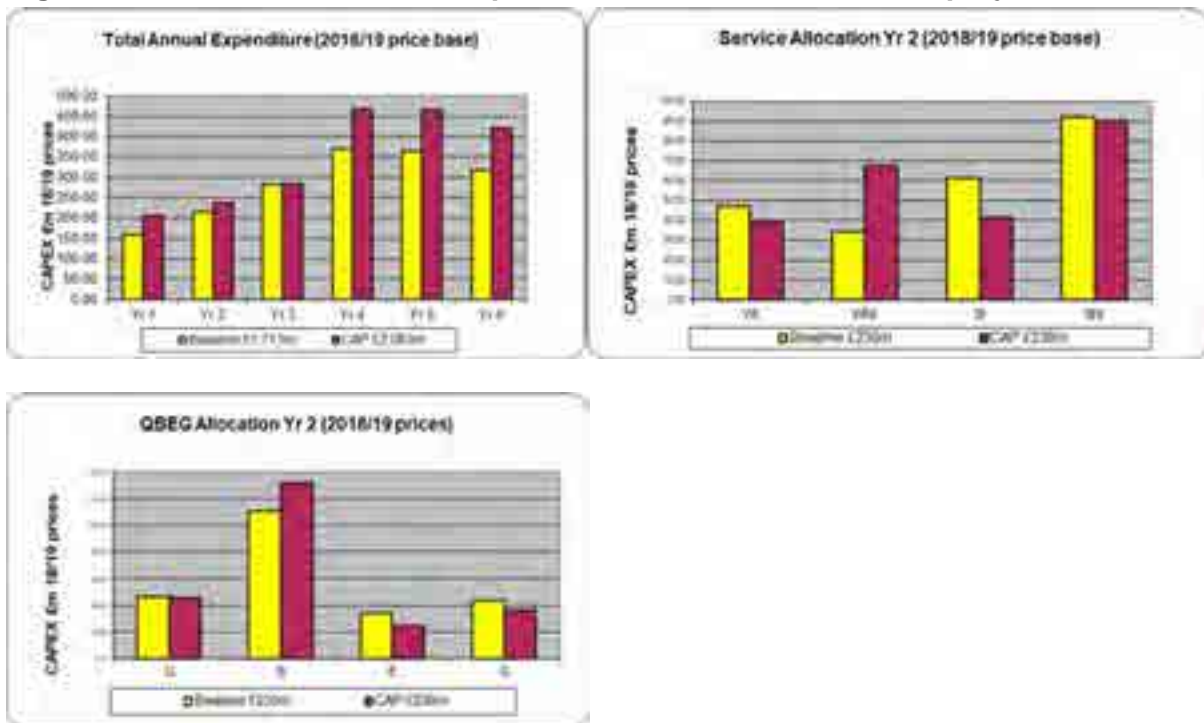
Refer to Table 40a and associated commentary for full detail on nominated outputs over Year 2 of the PC21 period.

Regulatory Dashboard

Figure 2 is an extract of the Regulatory Dashboard for period to end of March 2022/23. Only graphs that are currently meaningful have been included. 2018/19 prices are used in the graphs and the following is a summary of the main points to note:

- Graph 1: Total Annual Expenditure. The Graph shows a £20.89m increase in 2022/23 in funding available, when the baseline funding and Current Actual Projected are stated in 2018/19 terms.
- Graph 2: Service allocation. Service allocation for 2022/23 shows an element of imbalance between water and wastewater: Water Infrastructure (WI) is slightly below the target while the Water Non-infrastructure (WNI) is above the baseline profile. Sewerage Infrastructure (SI) is below the Baseline figure and Sewerage non-infrastructure (SNI) is broadly on target.
- Graph 3: QBEG. 2022/23 indicates £132.52m actual expenditure on base against a £110.12m baseline.

Figure 2: 2022-23 Q4 CIM. RPI as per current actual and NI Water projected



Capital expenditure commentary

This submission is completed primarily using CPMR with full reconciliation completed to ORACLE.

A					B																	C																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
Project Information					Project Outputs - Baseline																	Project Outputs - Current Actual or Projected																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
Project ID Reference	Project Name	PC21 Programme	Quality Regulator Date	EU Date (if appropriate)	PC21 Output Ref Code	Output Units	PC10										PC13							PC21							LWFP Output (Y/N)	PC15					PC17					LWFP Output (Y/N)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
PL Project ID	PL Project Name	PL PC21 Prog	PL Regulator Date	PL EU Date	PL Output Ref Code	PL Output Units	2018-11	2019-12	2020-13	2021-14	2022-15	2023-16	2024-17	2025-18	2026-19	2027-20	2028-21	2029-22	2030-23	2031-24	2032-25	2033-26	2034-27	2035-28	2036-29	2037-30	2038-31	2039-32	2040-33	2041-34	2042-35	2043-36	2044-37	2045-38	2046-39	2047-40	2048-41	2049-42	2050-43	2051-44	2052-45	2053-46	2054-47	2055-48	2056-49	2057-50	2058-51	2059-52	2060-53	2061-54	2062-55	2063-56	2064-57	2065-58	2066-59	2067-60	2068-61	2069-62	2070-63	2071-64	2072-65	2073-66	2074-67	2075-68	2076-69	2077-70	2078-71	2079-72	2080-73	2081-74	2082-75	2083-76	2084-77	2085-78	2086-79	2087-80	2088-81	2089-82	2090-83	2091-84	2092-85	2093-86	2094-87	2095-88	2096-89	2097-90	2098-91	2099-92	2100-93	2101-94	2102-95	2103-96	2104-97	2105-98	2106-99	2107-100	2108-101	2109-102	2110-103	2111-104	2112-105	2113-106	2114-107	2115-108	2116-109	2117-110	2118-111	2119-112	2120-113	2121-114	2122-115	2123-116	2124-117	2125-118	2126-119	2127-120	2128-121	2129-122	2130-123	2131-124	2132-125	2133-126	2134-127	2135-128	2136-129	2137-130	2138-131	2139-132	2140-133	2141-134	2142-135	2143-136	2144-137	2145-138	2146-139	2147-140	2148-141	2149-142	2150-143	2151-144	2152-145	2153-146	2154-147	2155-148	2156-149	2157-150	2158-151	2159-152	2160-153	2161-154	2162-155	2163-156	2164-157	2165-158	2166-159	2167-160	2168-161	2169-162	2170-163	2171-164	2172-165	2173-166	2174-167	2175-168	2176-169	2177-170	2178-171	2179-172	2180-173	2181-174	2182-175	2183-176	2184-177	2185-178	2186-179	2187-180	2188-181	2189-182	2190-183	2191-184	2192-185	2193-186	2194-187	2195-188	2196-189	2197-190	2198-191	2199-192	2200-193	2201-194	2202-195	2203-196	2204-197	2205-198	2206-199	2207-200	2208-201	2209-202	2210-203	2211-204	2212-205	2213-206	2214-207	2215-208	2216-209	2217-210	2218-211	2219-212	2220-213	2221-214	2222-215	2223-216	2224-217	2225-218	2226-219	2227-220	2228-221	2229-222	2230-223	2231-224	2232-225	2233-226	2234-227	2235-228	2236-229	2237-230	2238-231	2239-232	2240-233	2241-234	2242-235	2243-236	2244-237	2245-238	2246-239	2247-240	2248-241	2249-242	2250-243	2251-244	2252-245	2253-246	2254-247	2255-248	2256-249	2257-250	2258-251	2259-252	2260-253	2261-254	2262-255	2263-256	2264-257	2265-258	2266-259	2267-260	2268-261	2269-262	2270-263	2271-264	2272-265	2273-266	2274-267	2275-268	2276-269	2277-270	2278-271	2279-272	2280-273	2281-274	2282-275	2283-276	2284-277	2285-278	2286-279	2287-280	2288-281	2289-282	2290-283	2291-284	2292-285	2293-286	2294-287	2295-288	2296-289	2297-290	2298-291	2299-292	2300-293	2301-294	2302-295	2303-296	2304-297	2305-298	2306-299	2307-300	2308-301	2309-302	2310-303	2311-304	2312-305	2313-306	2314-307	2315-308	2316-309	2317-310	2318-311	2319-312	2320-313	2321-314	2322-315	2323-316	2324-317	2325-318	2326-319	2327-320	2328-321	2329-322	2330-323	2331-324	2332-325	2333-326	2334-327	2335-328	2336-329	2337-330	2338-331	2339-332	2340-333	2341-334	2342-335	2343-336	2344-337	2345-338	2346-339	2347-340	2348-341	2349-342	2350-343	2351-344	2352-345	2353-346	2354-347	2355-348	2356-349	2357-350	2358-351	2359-352	2360-353	2361-354	2362-355	2363-356	2364-357	2365-358	2366-359	2367-360	2368-361	2369-362	2370-363	2371-364	2372-365	2373-366	2374-367	2375-368	2376-369	2377-370	2378-371	2379-372	2380-373	2381-374	2382-375	2383-376	2384-377	2385-378	2386-379	2387-380	2388-381	2389-382	2390-383	2391-384	2392-385	2393-386	2394-387	2395-388	2396-389	2397-390	2398-391	2399-392	2400-393	2401-394	2402-395	2403-396	2404-397	2405-398	2406-399	2407-400	2408-401	2409-402	2410-403	2411-404	2412-405	2413-406	2414-407	2415-408	2416-409	2417-410	2418-411	2419-412	2420-413	2421-414	2422-415	2423-416	2424-417	2425-418	2426-419	2427-420	2428-421	2429-422	2430-423	2431-424	2432-425	2433-426	2434-427	2435-428	2436-429	2437-430	2438-431	2439-432	2440-433	2441-434	2442-435	2443-436	2444-437	2445-438	2446-439	2447-440	2448-441	2449-442	2450-443	2451-444	2452-445	2453-446	2454-447	2455-448	2456-449	2457-450	2458-451	2459-452	2460-453	2461-454	2462-455	2463-456	2464-457	2465-458	2466-459	2467-460	2468-461	2469-462	2470-463	2471-464	2472-465	2473-466	2474-467	2475-468	2476-469	2477-470	2478-471	2479-472	2480-473	2481-474	2482-475	2483-476	2484-477	2485-478	2486-479	2487-480	2488-481	2489-482	2490-483	2491-484	2492-485	2493-486	2494-487	2495-488	2496-489	2497-490	2498-491	2499-492	2500-493	2501-494	2502-495	2503-496	2504-497	2505-498	2506-499	2507-500	2508-501	2509-502	2510-503	2511-504	2512-505	2513-506	2514-507	2515-508	2516-509	2517-510	2518-511	2519-512	2520-513	2521-514	2522-515	2523-516	2524-517	2525-518	2526-519	2527-520	2528-521	2529-522	2530-523	2531-524	2532-525	2533-526	2534-527	2535-528	2536-529	2537-530	2538-531	2539-532	2540-533	2541-534	2542-535	2543-536	2544-537	2545-538	2546-539	2547-540	2548-541	2549-542	2550-543	2551-544	2552-545	2553-546	2554-547	2555-548	2556-549	2557-550	2558-551	2559-552	2560-553	2561-554	2562-555	2563-556	2564-557	2565-558	2566-559	2567-560	2568-561	2569-562	2570-563	2571-564	2572-565	2573-566	2574-567	2575-568	2576-569	2577-570	2578-571	2579-572	2580-573	2581-574	2582-575	2583-576	2584-577	2585-578	2586-579	2587-580	2588-581	2589-582	2590-583	2591-584	2592-585	2593-586	2594-587	2595-588	2596-589	2597-590	2598-591	2599-592	2600-593	2601-594	2602-595	2603-596	2604-597	2605-598	2606-599	2607-600	2608-601	2609-602	2610-603	2611-604	2612-605	2613-606	2614-607	2615-608	2616-609	2617-610	2618-611	2619-612	2620-613	2621-614	2622-615	2623-616	2624-617	2625-618	2626-619	2627-620	2628-621	2629-622	2630-623	2631-624	2632-625	2633-626	2634-627	2635-628	2636-629	2637-630	2638-631	2639-632	2640-633	2641-634	2642-635	2643-636	2644-637	2645-638	2646-639	2647-640	2648-641	2649-642	2650-643	2651-644	2652-645	2653-646	2654-647	2655-648	2656-649	2657-650	2658-651	2659-652	2660-653	2661-654	2662-655	2663-656	2664-657	2665-658	2666-659	2667-660	2668-661	2669-662	2670-663	2671-664	2672-665	2673-666	2674-667	2675-668	2676-669	2677-670	2678-671	2679-672	2680-673	2681-674	2682-675	2683-676	2684-677	2685-678	2686-679	2687-680	2688-681	2689-682	2690-683	2691-684	2692-685	2693-686	2694-687	2695-688	2696-689	2697-690	2698-691	2699-692	2700-693	2701-694	2702-695	2703-696	2704-697	2705-698	2706-699	2707-700	2708-701	2709-702	2710-703	2711-704	2712-705	2713-706	2714-707	2715-708	2716-709	2717-710	2718-711	2719-712	2720-713	2721-714	2722-715	2723-716	2724-717	2725-718	2726-719	2727-720	2728-721	2729-722	2730-723	2731-724	2732-725	2733-726	2734-727	2735-728	2736-729	2737-730	2738-731	2739-732	2740-733	2741-734	2742-735	2743-736	2744-737	2745-738	2746-739	2747-740	2748-741	2749-742	2750-743	2751-744	2752-745	2753-746	2754-747	2755-748	2756-749	2757-750	2758-751	2759-752	2760-753	2761-754	2762-755	2763-756	2764-757	2765-758	2766-759	2767-760	2768-761	2769-762	2770-763	2771-764	2772-765	2773-766	2774-767	2775-768	2776-769	2777-770	2778-771	2779-772	2780-773	2781-774	2782-775	2783-776	2784-777	2785-778	2786-779	2787-780	2788-781	2789-782	2790-783	2791-784	2792-785	2793-786	2794-787	2795-788	2796-789	2797-790	2798-791	2799-792	2800-793	2801-794	2802-795	2803-796	2804-797	2805-798	2806-799	2807-800	2808-801	2809-802	2810-803	2811-804	2812-805	2813-806	2814-807	2815-808	2816-809	2817-810	2818-811	2819-812	2820-813	2821-814	2822-815	2823-816	2824-817	2825-818	2826-819	2827-820	2828-821	2829-822	2830-823	2831-824	2832-825	2833-826	2834-827	2835-828	2836-829	2837-830	2838-831	2839-832	2840-833	2841-834	2842-835	2843-836	2844-837	2845-838	2846-839	2847-840	2848-841	2849-842	2850-843	2851-844	2852-845	2853-846	2854-847	2855-848	2856-849	2857-850	2858-851	2859-852	2860-853	2861-854	2862-855	2863-856	2864-857	2865-858	2866-859	2867-860	2868-861	2869-862	2870-863	2871-864	2872-865	2873-866	2874-867	2875-868	2876-869	2877-870	2878-871	2879-872	2880-873	2881-874	2882-875	288

Table 40a - Nominated Outputs

The following tables identify those PC21 Nominated Outputs delivered during the programme. The information aligns with that claimed in the relevant AIR Tables and also endeavours to update the status of the Nominated Outputs not delivered in period.

The delivery of Nominated Outputs has been measured against the Final Determination Targets with any accepted Change Controls incorporated.

For further details on the complete programme please refer to Table 40a.

Water Service Activities

Includes Table 11 Outputs.

Table 11, Line 22 - Completion of nominated trunk main schemes

Within Sub-programme 05, the PC21 Final Determination indicated a target of 14 trunk main schemes for the 6-year period with 2 of these profiled for delivery in 2022/23. As of Year 2 (2023/24), 3 trunk mains initially planned to achieve Beneficial Use in PC21, have been extended into the first 2 years of PC27.

Cumulative target to end of Year 2 = 2

Cumulative achieved at end of Year 2 = 2

Whitespots B Trunkmain achieved Beneficial Use in Year 2 (2022/23) of the programme. This project was accelerated in place of Crescent Link which was originally intended for delivery in Year 2 due to Whitespots being an area of high demand, and NI Water wanting to ensure costs were reduced as much as possible at Crescent Link. Crescent Link is now anticipated to deliver in Year 3 (2023/24).

The confidence grade for this line was assessed as A1: this is based on review of CPMR approvals and financial details contained within CPMR.

Trunk Mains Delivered During the Second Year of PC21 - AIR23 Period

Project Name	Project Code	Beneficial Use Date	Comments
Whitespots B	JR519	21/10/2022	

Table 11, Line 23 - Completion of nominated water treatment works schemes

Within Sub-programme 04, the PC21 Final Determination indicated a target of 22 water treatment work schemes for the 6-year period with none of these profiled for delivery in 2022/23. An additional 2 water treatment works intended for delivery in Year 6 of PC15 achieved Beneficial Use in PC21 Year 2. As of Year 2 (2023/24), 2 water treatment works initially planned to achieve Beneficial Use in PC21, have been extended into the first year of PC27.

Cumulative target to end of Year 2 = 1

Cumulative achieved at end of Year 2 = 4

Derg Treatability Improvements project achieved Beneficial Use in Year 2 (2022/23) of the programme.

Derg WTW MCPA PEO Undertakings project achieved Beneficial Use in Year 2 (2022/23) of the programme. This was previously meant to achieve Beneficial Use in Year 6 (2020/21) of PC15.

Dorisland WTW Treatability Recommended Improvements project achieved Beneficial Use in Year 2 (2022/23) of the programme. This was previously meant to achieve Beneficial Use in Year 6 (2020/21) of PC15.

The confidence grade for this line was determined using the reporting guidance and was assessed as A1 following review of CPMR approvals and financial details contained within CPMR.

WTWs Delivered During the Second Year of PC21 - AIR23 Period

Project Name	Project Code	Beneficial Use Date	Comments
Derg Treatability Improvements	JN562	31/03/2023	
Derg WTW MCPA PEO	JN538	31/03/2023	
Dorisland WTW Treatability Recommended Improvements	JA319	21/03/2023	

Table 11, Line 24 - Completion of nominated improvements to increase the capacity of service reservoirs and clear water tanks

Within Sub-programme 06, the PC21 Final Determination indicated a target of 4 service reservoirs and clear water tank improvements for the 6-year period with none of these profiled for delivery in 2022/23. In line with the PC21 FD target, no service reservoirs or clear water tank projects achieved Beneficial Use in Year 2 (2022/23) of the programme.

Cumulative target to end of Year 2 = 1

Cumulative achieved at end of Year 2 = 1

The confidence was assessed as A1 following review of CPMR approvals and financial details contained within CPMR.

Sewerage Service Activities

Includes Table 16 Outputs.

Currently the UID programme reflects the submission made for the PC21 Business Plan with the addition of any PC15 UIDs which were not delivered prior to commencing PC21. As a result of the Scope Certainty exercise NI Water anticipate a Change Control shall be required by the Mid Term Review which shall set out all of the intended UIDs for delivery within PC21. This shall require agreement from NIEA as well as the UR to ensure delivery of the correct solutions for Northern Ireland.

Table 16, Line 26 - Delivery of improvements to nominated UIDs as part of a defined programme of work

Within Sub-programme 12, NI Water has established the process for the identification, monitoring and review of UIDs. This included linking CAR and FD identifiers, developing CPMR to hold all relevant UID information and introducing review steps for all potential UIDs

identified. In addition, NIEA have full visibility of the programme and sign off individual outputs within overall schemes: consequently, UIDs are claimed on a rolling basis rather than waiting for overall scheme completion.

The PC21 Final Determination indicated a target of 139 UID improvements for the 6-year period with 21 of these profiled for delivery in 2022/23. 3 FD nominated outputs were delivered between 01 April 2022 and 31 March 2023 with the remaining projected UIDs not delivered split across the remaining years of PC21.

Cumulative target to end of Year 2 = 29

Cumulative achieved at end of Year 2 = 7

NI Water has maintained improvements in the reporting process and the cross-checking process for this line which were initially implemented for the AIR14 submission. Improvements in the management of Beneficial Use dates were implemented in January 2016. For 2022/23, the confidence grade for this line was determined using the reporting guidance and assessed as A1 – based on sound, time specific data captured relevant to each individual UID.

UIDs Delivered During the Second Year of PC21 - AIR23 Period

Catchment	UID Address	FD Ref.	Project ID	Comments	Operational Date
North Down WwTW	Stricklands Glen	KS874	KS874	Upgraded – PC21 Year 1 Carry Over Project	13/03/2023
Donnybrewer WwTW	Cottage Row	IPAC1065	KL533	Upgraded	23/06/2022
Tamnamore WwTW	Clonmore Road	IPAC2739	KF378	Upgraded	10/02/2023

4 of the projected UIDs were not delivered in 2022/23 due to reprofiling of the programme as a result of scope certainty exercises and further modelling work being undertaken – North Coast DA Ballycairn CSO CAI Playing Fields (1); North Coast DA Strand Road WwPS (2); and Keady Armagh DA Annvale WwPS (1). As such, Ballycairn CSO and Annvale WwPS are expected for delivery in Year 3 (2023/24), with Strand Road WwPS now anticipated for Beneficial Use in Year 6 (2026/27).

Table 16, Line 27 - Delivery of improvements to WwTW through nominated schemes as part of a defined programme of work

Within Sub-programme 16, 6 WwTW nominated outputs were delivered between 01 April 2022 and 31 March 2023.

The PC21 Final Determination indicated a target of 45 wastewater treatment work schemes for the 6-year period with 5 of these profiled for delivery in 2022/23. As of Year 2 (2023/24), 4 wastewater treatment works initially planned to achieve Beneficial Use in PC21, have been extended into the first 2 years of PC27.

Cumulative target to end of Year 2 = 5

Cumulative achieved at end of Year 2 = 7

Changes to the definition of how Beneficial Use can be claimed on a WwTW project were agreed with the Regulator in 2018/19 to ensure a WwTW is capable of meeting the appropriate consent standard.

NI Water has maintained improvements in the reporting process and the cross-checking process for this line which were initially implemented for the AIR14 submission. Improvements in the management of Beneficial Use dates were implemented in January 2016. For 2022/23, the confidence grade for this line was determined using the reporting guidance and assessed as A1 – based on sound, time specific data captured relevant to each individual WwTW.

WwTWs Delivered During the Second Year of PC21 - AIR23 Period

Project Name	Project Code	Beneficial Use Date	Comments
Ballygowan WwTW	KS235	26/01/2023	PC21 Year 1 Carry Over Project
Carrowdore WwTW	KS113	17/02/2023	
Ballywalter WwTW	KS113	17/02/2023	
Ballyhaslin WwTW	KS113	17/02/2023	
Warrenpoint WwTW	KV241	15/11/2022	
Loughries WwTW	KR730	16/02/2023	

Table 16, Line 28 - Investment in improvements to small wastewater treatment works as part of the Rural Wastewater Investment Programme.

Within Sub-programme 17, 10 small rural schemes achieved beneficial use in 2022/23. Details of the actual works and year delivered are listed in the table below.

The PC21 FD Target for RWWIP outputs in each year is 6 with a total of 36 sites to be delivered in the PC period. NI Water still intends to deliver the full 36 sites however it is to be noted that the numbers to be delivered may be spread over the remaining years of PC21.

Cumulative target to end of Year 2 = 12

Cumulative achieved at end of Year 2 = 12

As with WwTW in Line 27, a change in how Beneficial Use may be claimed was agreed in 2018/19. After discussions with the Utility Regulator, it was accepted that in the case of the Rural Wastewater Investment Programme, achieving beneficial use should be based on evidenced delivery of improvement (e.g., improved discharge to the environment) which was not necessarily the date of NIEA sign-off.

Whilst Beneficial Use is not dependent on project sign-off by the relevant regulator, regulatory sign-off should be sought once the company determines that Beneficial Use has been obtained. If regulatory sign-off is declined, then the Beneficial Use date should be revised to take account of the additional work identified to achieve Beneficial Use.

At the time of Audit, samples were not yet available to confirm Beneficial Use could be claimed on all 10 sites listed in the table below, however in line with the UR guidance, sites where evidence exists before the time of company AIR submission may be claimed within the reporting year. As such Table 16 and 40a have been updated accordingly and NI Water will continue to review procedures to ensure timely reporting.

The confidence grades for this line were determined using the reporting guidance and were assessed as A1, based on the evidence within the methodology and the visibility of programme as defined within the 'Project Sites' section on CPMR.

RWwIP Schemes Delivered During the Second Year of PC21 - AIR23 Period

CAR Site Reference	Project title	Year claimed
S01117	Magherahoney WwTW	2022/23
S02560	Ballymacawley WwTW	2022/23
S02147	Maglion Terrace WwTW	2022/23
S03097	Drumneechy WwTW	2022/23
S01451	Racavan WwTW	2022/23
S00336	Ballycairn WwTW	2022/23
S01111	Hillcrest WwTW	2022/23
S01110	Gortereghy WwTW	2022/23
S00260	Ballylumford WwTW	2022/23
S00228	Ballygarvigan WwTW	2022/23

Table 16, Line 32 - Number of sustainable WwTW solutions delivered (p.e. ≥ 250)

No WwTW sustainable solutions with a p.e. greater than 250 were delivered in 2022/23.

Table 16, Line 33 - Number of sustainable WwTW solutions delivered (p.e. < 250)

No WwTW sustainable solutions with a p.e. less than 250 were delivered in 2022/23.

Table 16, Line 34 - Number of current Economic Constraint Areas removed by PC21 investment

0 Economic Constraint Area were removed in 2022/23. However, positive planning responses are provided by NI Water to Developers due to the ongoing construction works in a number of catchments.

Table 16, Line 35 - Number of current Serious Development Restrictions removed by PC21 investment

6 Serious Development Restrictions were removed in 2022/23 – Ards North (3), Warrenpoint, Loughries, and Ballygowan (from Year 1).

NORTHERN IRELAND WATER LIMITED - ANNUAL INFORMATION RETURN
 ANNUAL INFORMATION RETURN - TABLE 40b CAPITAL INVESTMENT
 DELIVERY OF DAPs AND INTEGRATED ENVIRONMENTAL MODELLING

Drainage Area Plans and Integrated Environmental Modelling																				
DAP Information	Model Build Report Dates				Needs and Options Report Dates				Integrated Environmental Modelling (IEM) Dates				DAP Information				IEM Information			
	Preparation	Needs Report	Options Report	Final Report	Needs Report	Options Report	Final Report	Needs Report	Options Report	Final Report	Needs Report	Options Report	Final Report	Needs Report	Options Report	Final Report	Needs Report	Options Report	Final Report	
DA0028	Aliskey Road DA	32																		
DA0170	Aliskey DA	84	Oct-22	Oct-22																
DA0323	Agghummas DA	37																		
DA0171	Agghummas DA	1,420	Oct-22	Oct-22																
DA0153	Agghummas DA	1,224	Oct-22	Oct-22																
DA0481	Agghummas DA	809	Jul-23	Jul-23																
DA0474	Agghummas DA	225	Oct-22	Oct-22																
DA0771	Agghummas DA	15																		
DA0226	Agghummas DA	11																		
DA0706	Agghummas DA	64																		
DA0311	Agghummas DA	8																		
DA0475	Agghummas DA	61																		
DA1134	Agghummas DA	0																		
DA1153	Agghummas DA	14																		
DA0287	Agghummas DA	125																		
DA0880	Alibane DA	14																		
DA0824	Alibane DA	9																		
DA0850	Alibane DA	3																		
DA0229	Alibane DA	29																		
DA0322	Alibane DA	881	Jul-23	Jul-23																
DA0372	Alibane DA	541	Jul-23	Jul-23																
DA0543	Alibane DA	19																		
DA0223	Alibane DA	16																		
DA0051	Alibane DA	1,797	Apr-22	Mar-23	Aug-23	Dec-23														
DA0070	Alibane DA	429	Oct-22	Oct-22																
DA0224	Alibane DA	2,301																		
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
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DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23														
DA0324	Alibane DA	6,086	Jun-22	Jun-23	Oct-22	Aug-23		</												

DA0644	Leske Road DA	27								EM10	10 Bush		Apr-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	No Planned Study
DA1022	Legacyory Conifers DA	18								EM09	09 Longh Fyde		Apr-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	No Planned Study
DA1166	Legacyory DA	156								EM11	11 Bellast		Dec-22	Jun-23	No Planned Study	No Planned Study	N/A		AFB and Longline Environmental (LE)
DA0867	Legacyory DA	29								EM09	09 Longh Fyde		Apr-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA0112	Legacyory DA	25								EM17	17 Upper Barn		Apr-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA0963	Leggighin Road Crumagh DA	20								EM07	07 Longh Fyde		Apr-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA1100	Leirn DA	203								EM01	01 Duryum		Dec-22	Dec-22	No Planned Study	No Planned Study	N/A		AFB
DA1078	Leirn Road DA	6								EM17	17 Upper Barn		Apr-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA1010	Leirne DA	18								EM06	06 Strangford		Jun-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA1028	Leirne Highway DA	6								EM09	09 Longh Fyde		Apr-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA1028	Leirne DA	18								EM09	09 Longh Fyde		Apr-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA0940	Leirne DA	81								EM15	15 Erna		Apr-25	Apr-25	No Planned Study	No Planned Study	No Planned Study	Still to be tendered	Still to be tendered
DA0941	Leirne DA	13								EM15	15 Erna		Apr-25	Apr-25	No Planned Study	No Planned Study	No Planned Study	Still to be tendered	Still to be tendered
DA0938	Leirne DA	16,566	Dec-21	Dec-21	Mar-22	Mar-22				EM09	09 Longh Fyde		Apr-23	Nov-23	No Planned Study	No Planned Study	PC21 Ink		Still to be tendered
DA0824	Leirne DA	7								EM09	09 Longh Fyde		Apr-23	Nov-23	No Planned Study	No Planned Study	WSP		Still to be tendered
DA0823	Leirne DA	7								EM09	09 Longh Fyde		Apr-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA0829	Leirne DA	10								EM06	06 Strangford		Jun-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA0115	Leirne Road DA	15								EM06	06 Strangford		Jun-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA0121	Lisdon DA	1,531	Apr-22	Apr-22						EM15	15 Erna		Apr-25	Apr-25	No Planned Study	No Planned Study	PC27	Still to be tendered	Still to be tendered
DA0131	Lisdon DA	74,682	Jan-23	May-23	May-24	Dec-24				EM11	11 Bellast		Dec-22	Jun-23	Stage 1 - Catchment Planning	PC27	Alkna		AFB and Longline Environmental (LE)
DA0504	Lisdon DA	271								EM10	10 Bush		Apr-23	Nov-23	DAP not issued yet		Rurals		No Planned Study
DA0911	Lisdon Rd DA	6								EM17	17 Upper Barn		Apr-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA0706	Lisdon Bridge DA	15								EM05	05 Blackwater		Oct-23	Oct-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	RPS
DA0800	Lisdon DA	24								EM05	05 Blackwater		Oct-23	Oct-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	RPS
DA0781	Lisdon DA	21								EM05	05 Blackwater		Oct-23	Oct-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	RPS
DA1082	Lisdon DA	206								EM16	16 Lower Barn		Apr-23	Nov-23	DAP not issued yet		Rurals		No Planned Study
DA0962	Lisdon DA	13								EM16	16 Lower Barn		Apr-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA0900	Lisdon DA	31								EM16	16 Lower Barn		Apr-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA0909	Lisdon DA	9								EM16	16 Lower Barn		Apr-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA0181	Lisdon DA	14								EM08	08 Cartlagh		Dec-22	May-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA0972	Lisdon DA	12								EM10	10 Bush		Apr-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA0705	Lisdon DA	38								EM08	08 Cartlagh		Dec-22	Oct-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	RPS
DA0628	Lisdon DA	6								EM10	10 Bush		Apr-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA0406	Lisdon DA	105								EM13	13 Bellast		Sep-23	Nov-23	No Planned Study	No Planned Study	N/A		Interiak
DA0381	Lisdon DA	42								EM09	09 Longh Fyde		Apr-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA0277	Lisdon DA	21								EM17	17 Upper Barn		Apr-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA0467	Lisdon DA	16								EM16	16 Lower Barn		Apr-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA0585	Lisdon DA	22								EM16	16 Lower Barn		Apr-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA0404	Lisdon DA	23								EM16	16 Lower Barn		Apr-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA0887	Lisdon DA	23								EM15	15 Erna		Apr-25	Apr-25	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA0941	Lisdon DA	208								EM15	15 Erna		Apr-25	Apr-25	No Planned Study	No Planned Study	N/A	Still to be tendered	Still to be tendered
DA0506	Lisdon DA	6,380	Nov-22	Sep-23	Nov-23					EM15	15 Erna		Apr-25	Apr-25	Stage 2 - Model Build & Verification	PC27 Ink	WSP		Still to be tendered
DA0327	Lisdon DA	41								EM16	16 Lower Barn		Apr-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA0274	Lisdon DA	14								EM10	10 Bush		Apr-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA0919	Lisdon DA	52								EM09	09 Longh Fyde		Apr-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA0311	Lisdon DA	138								EM17	17 Upper Barn		Apr-23	Nov-23	DAP not issued yet		Rurals		No Planned Study
DA1123	Lisdon DA	237								EM09	09 Longh Fyde		Apr-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA0514	Lisdon DA	19								EM16	16 Lower Barn		Apr-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA0913	Lisdon DA	80								EM12	12 North Coast		Apr-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA1141	Lisdon DA	9								EM09	09 Longh Fyde		Apr-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA0540	Lisdon DA	9								EM13	13 Bellast		Sep-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	RPS
DA1100	Lisdon DA	3								EM17	17 Upper Barn		Apr-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA1086	Lisdon DA	83	Jul-23	Jul-23						EM09	09 Longh Fyde		Apr-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA1142	Lisdon DA	2								EM09	09 Longh Fyde		Apr-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA1079	Lisdon DA	3								EM16	16 Lower Barn		Apr-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA0885	Lisdon DA	29								EM16	16 Lower Barn		Apr-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA0758	Lisdon DA	585	Jul-23	Jul-23						EM05	05 Blackwater		Oct-23	Oct-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA0461	Lisdon DA	679	Jul-23	Jul-23						EM10	10 Bush		Apr-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA0073	Lisdon DA	205								EM01	01 Duryum		Dec-22	Dec-22	No Planned Study	No Planned Study	N/A		AFB
DA0079	Lisdon DA	200								EM06	06 Strangford		Jun-23	Nov-23	No Planned Study	No Planned Study	Historical Rurals		Interiak
DA0310	Lisdon DA	1,038								EM17	17 Upper Barn		Apr-23	Nov-23	No Planned Study	No Planned Study	N/A		Interiak
DA0481	Lisdon DA	11								EM13	13 Bellast		Sep-23	Sep-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	RPS
DA1162	Lisdon DA	10								EM10	10 Bush		Apr-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA0480	Lisdon DA	18								EM16	16 Lower Barn		Apr-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA0309	Lisdon DA	424	Jul-23	Jul-23						EM08	08 Cartlagh		Dec-22	May-23	No Planned Study	No Planned Study	Historical Rurals		Interiak
DA1029	Lisdon DA	9								EM08	08 Cartlagh		Dec-22	May-23	No Planned Study	No Planned Study	Historical Rurals		Interiak
DA1960	Lisdon DA	9								EM08	08 Cartlagh		Dec-22	May-23	No Planned Study	No Planned Study	Historical Rurals		Interiak
DA0308	Lisdon DA	96								EM11	11 Bellast		Dec-22	Jun-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	AFB and Longline Environmental (LE)
DA0975	Lisdon DA	136								EM16	16 Lower Barn		Apr-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA0522	Lisdon DA	841								EM16	16 Lower Barn		Apr-23	Nov-23	No Planned Study	No Planned Study	N/A	No Planned Study	Interiak
DA0726	Lisdon DA	149								EM05	05 Blackwater		Oct-23	Oct-23	DAP not issued yet		Rurals		RPS
DA0708	Lisdon DA	15								EM17	17 Upper Barn		Apr-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA0307	Lisdon DA	4,603	Sep-23	Jun-23	Sep-23					EM11	11 Bellast		Dec-22	Jun-23	Stage 1 - Model Build & Verification	PC27	RPS		AFB and Longline Environmental (LE)
DA1168	Lisdon DA	2								EM01	01 Duryum		Dec-22	Dec-22	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA0515	Lisdon DA	6,647	Oct-22	Oct-22	Jun-23	Aug-23				EM18	18 Moyula		Oct-23	Oct-23	Stage 4 - Interventions	PC27 Ink	Alkna		Interiak
DA1028	Lisdon DA	16								EM09	09 Longh Fyde		Apr-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA0427	Lisdon DA	19,120	Nov-21	Nov-21	Apr-23	May-23				EM18	18 Moyula		Oct-23	Oct-23	No Planned Study	No Planned Study	PC27 Ink		Interiak
DA0434	Lisdon DA	9								EM18	18 Moyula		Oct-23	Oct-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA0611	Lisdon DA	86								EM10	10 Bush		Apr-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA0910	Lisdon DA	164	Jul-23	Jul-23						EM09	09 Longh Fyde		Apr-23	Nov-23	No Planned Study	No Planned Study	Historical Rurals		Interiak
DA0460	Lisdon DA	8								EM10	10 Bush		Apr-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA0320	Lisdon DA	8								EM02	02 Lerna		May-23	Apr-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA0727	Lisdon DA	18								EM05	05 Blackwater		Oct-23	Oct-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	RPS
DA0824	Lisdon DA	9								EM15	15 Erna		Apr-25	Apr-25	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA0504	Lisdon DA	15								EM10	10 Bush		Apr-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA0305	Lisdon DA	276	Jul-23	Jul-23						EM05	05 Blackwater		Oct-23	Oct-23	No Planned Study	No Planned Study	Rurals Model Build		RPS
DA1177	Lisdon DA	5,074	Jan-24	Jan-25						EM12	12 North Coast		Apr-23	Nov-23	DAP not issued yet	Jan-25	TBC		No Planned Study
DA0204	Lisdon DA	24								EM08	08 Cartlagh		Dec-22	May-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA1028	Lisdon DA	13								EM07	07 Ardara Peninsula		Dec-22	Dec-22	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA0254	Lisdon DA	14								EM16	16 Lower Barn		Apr-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	Interiak
DA0728	Lisdon DA	21								EM05	05 Blackwater		Oct-23	Oct-23	No Planned Study	No Planned Study	No Planned Study	No Planned Study	RPS
DA0227																			

DA0195	Warepoint DA	15,948	Jun-19	Jun-19	Apr-23	Dec-23	EM08	08. Carlingford	Dec-22	May-23	No Planned Study	PC21 link	RPS	Interak
DA0204	Warriford Road DA	221	Jul-23	Jul-23			EM18	18. Moyale	Oct-23	Oct-23	Ruralist Model Build	Ruralist	Interak	Interak
DA0904	White Road DA	6					EM09	09. Lough Foyle	Apr-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	Interak
DA0105	Whitechurch Road DA	12					EM07	07. Ards Peninsula			No Planned Study	No Planned Study	No Planned Study	No Planned Study
DA0176	Whitigale Road/Baldymore DA	11					EM17	17. Upper Bann			No Planned Study	No Planned Study	No Planned Study	No Planned Study
DA0003	Whitewash DA	88,141	Dec-15	Dec-15	Mar-21	Mar-21	EM11	11. Ballyat	Dec-22	Jun-23	Stage 5 - Modelling Support	PC21 link	Altra	AFB and Longhwa Environmental (LE)
DA0794	Whitewash Road DA	6					EM05	05. Blackwater	Oct-23	Oct-23	No Planned Study	No Planned Study	No Planned Study	RPS
DA0523	Whitewash Road Admascumna CL						EM10	10. Bush			No Planned Study	No Planned Study	No Planned Study	No Planned Study
DA0530	Whitewash Road Cammoan DA	5					EM10	10. Bush			No Planned Study	No Planned Study	No Planned Study	No Planned Study
DA0704	Whitewash Road DA	10					EM10	10. Bush			No Planned Study	No Planned Study	No Planned Study	No Planned Study
DA0911	Willow Road DA	0					EM09	09. Lough Foyle	Apr-23	Nov-23	No Planned Study	No Planned Study	No Planned Study	Interak
DA0385	Winnell Road North DA	3					EM07	07. Ards Peninsula			No Planned Study	No Planned Study	No Planned Study	No Planned Study
DA0386	Winnell Road South DA	13					EM07	07. Ards Peninsula			No Planned Study	No Planned Study	No Planned Study	No Planned Study
DA0322	Wynnamerry DA	34					EM15	15. Erne	Apr-25	Apr-25	No Planned Study	No Planned Study	No Planned Study	Still to be tendered
DA0102	Woburn Road DA	10					EM07	07. Ards Peninsula			No Planned Study	No Planned Study	No Planned Study	No Planned Study

Table 40b – Delivery of DAPS and Integrated Environmental Modelling

Introduction

This chapter provides a report on the delivery of Drainage Area Plans (DAP) and Integrated Environmental Models (IEM) and their relationship to capital schemes planned for delivery in PC21. Additionally, there are a number of Development Objectives are also affected by the delivery of the models listed in Table 40b such as;

Development Output 25 [Addressing scope uncertainty for the Mid-term Review]

Development Output 9 [(WwPS / CSO Quality (UID)),

Development Output 19 [LWWP Networks]

Development Output 20 [LWWP Wastewater Treatment Works].

Table 40b is NI Water's one version of the truth with regard to all DAP and IEM programming and unifies all modelling studies across the country regardless of size or timescale. The information held within Table 40b is updated monthly by NIW and linked to the Corporate system. Our Corporate System is known as the DAP APP which communicates the progress of all live DAP/IEM projects and also identifies historical and future planned DAPs/IEM to the business.

Dates are now added to the date columns previously in AIR22 there was additional note within these columns such as N/A. In the case of Ballykelly Limavady [DA0844] note was 'Not progressed beyond MBV' this has now blank as no baseline date there is no expected date. This was amended to align formatting between Table 40b and the DAP App to ensure transfer of dates.

Table 40b links NIW's DAP and IEM programmes and articulates dependencies between both programmes of work. For any given IEM, Table 40b outlines the DAP studies feeding into it and thus allowing NIW to understand where changes to DAP delivery may have a knock on impact on IEM studies.

Table 40b facilitates linkages to be established between the DAPs, IEM work and any associated capital investment projects and outputs listed in Tables 40 and 40a. As such, Table 40b will help identify how any movement in the planned delivery programme for either DAPs or IEM work is affecting the delivery of capital investment projects and associated benefits to consumers. Linkage in Table 40 is against projects related to that DAP or IEM, not all of those will be Nominated Outputs, and even some that are, such as DG5s will not be a part of Table 40a.

Handover of model results to IEM delivery team typically occurs before DAP MBV is completed. For instance, Dundrum (ref IEM01) DAP model outputs were supplied to IEM team in July 22, however the DAP MBV was not fully completed until early 2023.

The Populations stated in Table 40b are derived from the Headroom Capacity tables which are informed by AIR23 and stored in the CAR Corporate System. The process for the populations update is that the DAP App is updated from the Headroom Capacity tables and then Table40b is then updated from the DAP App.

Baseline dates for milestone delivery of modelling projects were set at AIR 22 and these dates are used to monitor progress for AIR 23 reporting.

In order understand potential delivery/programme risks associated with both DAPs and IEM studies, NIW has developed an Integrated Risk Register. Please refer to evidence folder.

Validation Criteria

There are 1,063 Drainage Areas, this is the total number of NIW catchments covering the boundary extents of sewer networks draining to WwTWs. Of the 1,063 Drainage Areas 195 DAPs are historical or ongoing DAPs.

Within Table 40b there are 1,069 rows, although there are only 1,063 Drainage Areas. Three of the Catchments North Coast, North Down and Craigavon have been disaggregated.

The IEM ID references have been reviewed since AIR22 submission. The updated IEM ID references has been agreed and discussed with NIEA in Dec 2022 and correlates with internal folder numbering. There are 20 IEM references; Note IEM04 is not included as the IEM04 Benone is incorporated into IEM12-North Coast.

Where no date has been inputted into either Columns 4 through to 7 or Column 10 or 11 this is due to reasons such as No Planned Study, DAP not issued yet or Rurals (small catchments no study be undertaken). If date has been inputted into Column 4, 6 or 10 it is to be considered the completion date if no date has been inputted into Column 5, 7 or 11. Columns 5, 7 and 11 will be updated once dates are confirmed with consultants that allow for any delays to the dates in Column 4, 6 or 10 such as prolonged surveys.

DAP

NI Water has an in-house team responsible for the delivery and, moving forward, the maintenance of Drainage Area Plan (DAP) models. These models inform precautionary solutions proposed on wastewater schemes with relation to Unsatisfactory Intermittent Discharges (UIDs) and are used as an input to inform water quality studies.

As a requirement for PC21 the Utility Regulator has requested that a programme of DAPs be developed and reported on to allow early monitoring against potential slippages in the delivery of Nominated Projects.

The delivery of DAPs directly affects the ability of NI Water to deliver on its task of addressing the Scope Uncertainty issues for the Mid Term Review (“To Be Determined Projects”). Without an informed decision and recommendation from NIEA, based on model outputs, assumptions would have to be made on the potential solution which would not give the necessary assurance required for the UR to determine on the projects in question.

The DAP programme also includes the development of models for rural catchments (typically less than 1,000 PE). The rural model build programme does not adhere the standard DAP process and therefore is not reported on in this document.

For tracking progress, IEMs have been broken down into 5 stages – refer to Table 40b methodology for details.

IEM

The IEM Programme is currently under development. The purpose of this Programme is to facilitate a holistic approach to assessing diffuse and point source pollution in catchments and receiving watercourses in order to better inform NIEA of the impact resulting from NI Water assets. Where an IEM can provide an evidence-based, enhanced understanding of the overall catchment context of pollution sources and their impacts, a specific solution may

be proposed to deal with the NI Water impact on the watercourse. This may result in the potential lowering of NIEA consent standards or requirements.

For tracking progress, IEMs have been broken down into 5 stages – refer to table 40b methodology for details.

Activity Completed to date and its outcome

To date all models expected to be delivered within years 1 and 2 of PC21 have been completed and the programmes shall be monitored on an ongoing basis for any potential variances.

As this is a new reporting requirement, it is expected that the information contained within Table 40b shall improve and grow upon completion of a fully developed IEM programme, as well as LWWP catchment monitoring plans.

DAP Model Build Verification

NI Water intended to complete the Model Build Report stage on 45 DAPs in the AIR 23 reporting period. Of these, 14 were completed within the AIR 23 reporting period.

The relevant DAPs are listed in the excel table.



MBV and NO Apr 22
to Mar 23.xlsx

DAP Needs and Options

NI Water intended to complete Needs and Options stage on 23 DAPs in the AIR 23 reporting period. Of these, 6 were completed in the AIR 23 reporting period.

The relevant DAPs are listed in the excel table above.

IEM Model

NI Water intended to complete 5 IEM studies in AIR 23. Of these, the Dundrum IEM has been delivered within AIR 23.

Note: Dundrum did not appear in AIR 22 – this was omitted in error by NIW and has been rectified for AIR 23. During AIR 23 was noted that Larne IEM BL date had been amended to Sept 22 from Mar 23 as was noted in AIR 22, this has been amended to match AIR 22 (Mar 23).

IEM reference (linked to Table 40)	IEM Name	Baseline IEM Model Completion Date	Current Actual IEM Model Completion Date
IEM01	01. Dundrum	Dec 22	Dec 22
IEM02	02. Larne	Mar-23	Apr-23

Targets not delivered in period

Table 40b indicates slippages across the DAP programme relating to both Model Build and Needs and Options stages.

- PC21 scope certainty submissions had a significant impact on the entire DAP delivery programme.

- In catchments with named PC21 schemes (SP12B), delivery was initially focussed on specific, targeted areas of the DAP only. The wider catchment needs were subsequently delivered post scope certainty. This approach caused many of the DAP programmes to be significantly extended.
- Due to resourcing issues in the supply chain, studies to inform PC27 were put on hold to ensure timely delivery of PC21 linked studies
- Design support for PC21 schemes has consumed supply chain resource and therefore also contributed to PC27 DAP delays
- Flow Survey extensions due to inadequate rainfall events
- Additional surveys/investigations required to support scope certainty exercise.
- Delays by NIEA with regard to generation of environmental Statement of Needs caused many of the DAP delivery programmes to be put on hold.

The IEM programme is a newer initiative for NI Water and Dundrum IEM was the pilot. The AIR22 noted a further four IEM studies would also be completed by end March 2023, however these studies have been delayed within Stage 4 (Optioneering).

- For Belfast the delay is currently the input of the DAPs (Whitehouse, Kinnegar, Glenmachen). These DAPs require specific 10 year simulations to be carried out and then their outputs used as inputs into Storm-Optimiser model. This is a monti-carlo type modelling solution and therefore the inputs all need to align to ensure consistency before starting as these runs also take significant time. This has been a new element of work, and it has had some issues to ensure the DAP and IEM Consultant are referring to the same modelling element. For example, it was requested that a typical year was run on the three DAP models. The result was that three different years were run across the three DAP models as they each have a different typical year. This could not be used as an input into the Storm-Optimiser model as they need to be aligned.
- For the two catchments – Larne and Newcastle these are in Stage 4. The models have both had initial sensitivity analysis carried out (first element of optioneering), however these projects need to be presented to NIEA to ensure buy-in of the project process before the completion of the options which currently arranging date for meeting.
- For the Carlingford catchment – It should be noted that to date NI Water has not formally signed off on the model calibration and validation. It was noted on 02-05-2023 that an error had occurred in the source apportionment calculation results provided by Longline on 27-12-2022, updated results were provided on 02-05-2023.

Targets delivered ahead of programme in period

In some cases, a DAP or IEM study may be delivered ahead of baseline dates in Table 40b.

For example, in AIR 23, Armagh DAP (ref DA0755) Model Build and Verification was delivered 5 months ahead of scheduled baseline delivery date.

Ballynahinch DAP (ref DA0040) Needs and Options was delivered 1 month ahead of scheduled baseline delivery date.

This DAP was accelerated to facilitate PC21 capital delivery requirements.

NORTHERN IRELAND WATER LIMITED - ANNUAL INFORMATION RETURN

ANNUAL INFORMATION RETURN- TABLE 41 KEY OUTPUTS
HEALTH & SAFETY INFORMATION (NIW only)

DESCRIPTION	UNITS	DP	1	2	3	4	5	6	7	8	9	10	11	12
			REPORTING YEAR 2015-16 CG	REPORTING YEAR 2016-17 CG	REPORTING YEAR 2017-18 CG	REPORTING YEAR 2018-19 CG	REPORTING YEAR 2019-20 CG	REPORTING YEAR 2020-21 CG	REPORTING YEAR 2021-22 CG	REPORTING YEAR 2022-23 CG	REPORTING YEAR 2023-24 CG	REPORTING YEAR 2024-25 CG	REPORTING YEAR 2025-26 CG	REPORTING YEAR 2026-27 CG
A OF OCCUPATIONAL ILL HEALTH														
1 Employee total	nr	0	1,230 A2	1,246 A2	1,281 A2	1,277 A2	1,285 A2	1,291 A2	1,334 A2	1,385 A2				
2 Total days lost due to sickness, accident and occupational ill health	nr	0	10,395 A2	10,169 A2	11,269 A2	11,251 A2	12,929 A2	9,347 A2	10,944 A2	10,166 A2				
3 Total days lost - rate per 1000 employees	nr	2	8,451.22 A2	8,176.57 A2	8,935.77 A2	8,810.49 A2	10,051.48 A2	7,240.12 A2	8,203.90 A2	7,301.79 A2				
4 Number of incidents of occupational ill health	nr	0	134 A2	135 A2	143 A2	176 A2	192 A2	119 A2	171 A2	168 A2				
5 Incidents of occupational ill health - rate per 1000 employees	nr	2	108.94 A2	108.35 A2	113.40 A2	137.82 A2	149.42 A2	92.18 A2	128.19 A2	120.43 A2				
B RIDDOR REPORTS														
6 Total RIDDOR incidents	nr	0	7 A1	4 A1	A1	6 A1	5 A1	5 A1	3 A1	6 A1				
7 RIDDOR - rate per 1000 employees	nr	2	5.69 A1	3.21 A1	4.76 A1	4.70 A1	3.89 A1	3.87 A1	2.25 A1	4.30 A1				
8 3-day accident rate per 1000 employees	nr	2	5.68 A1	3.21 A1	4.76 A1	4.70 A1	3.89 A1	3.87 A1	2.25 A1	4.30 A1				
9 Major/fatal accident rate per 1000 employees	nr	2	0.00 A1	0.00 A1	0.00 A1	0.00 A1	0.00 A1	0.00 A1	0.00 A1	0.00 A1				
C AND INCIDENCE OF OCCUPATIONAL ILL HEALTH														
10 Contractors' employees total	nr	0	NA	NA	NA	NA	NA	NA	NA	NA				
11 Total days lost due to sickness, accident and occupational ill health	nr	0	NA	NA	NA	NA	NA	NA	NA	NA				
12 Total days lost - rate per 1000 employees	nr	2	No data											
13 Number of incidents of occupational ill health	nr	0	NA	NA	NA	NA	NA	NA	NA	NA				
14 Incidents of occupational ill health - rate per 1000 employees	nr	2	No data							0.00				
D CONTRACTORS' RIDDOR REPORTS														
15 Total RIDDOR incidents	nr	0	7 BX	9 BX	6 BX	5 BX	4 BX	9 BX	4 BX	5 BX				
16 RIDDOR - rate per 1000 contractors' employees	nr	2	No data											
17 3-day accident rate per 1000 contractors' employees	nr	0	NA	NA	NA	NA	NA	NA	NA	NA				
18 Major/fatal accident rate per 1000 contractors' employees	nr	2	0.00 A2	0.00 A2	0.00 A2	NA	NA	NA	NA	NA				

Table 41 – Health and Safety Information (NI Water only)**Lines 1 - 5 - Lost time**

In 2022/23 financial year NI Water lost a total of 10,186 working days due to sickness which was equivalent to 7.3 working days lost per employee. The Key Performance Indicator (KPI) attendance in 22/23 was 96.5% and NI Water delivered an actual rate of 96.7%, 0.2% inside the target.

HR Advisors, in conjunction with line managers, continue to manage employee absence cases that meet the sick absence trigger points to highlight the importance of good attendance and corrective action taken where appropriate.

Human Resources work in partnership with line managers, the Employee Support Officer, Inspire (our Employee Assistance Programme provider), the occupational health provider and employees to assist those on long term sick to return to work and to facilitate reasonable adjustments where required.

During the year there was a change to absence reporting undertaken by the Human Resources department. The data was presented to senior management on a monthly basis to provide updates on current absence levels and with the goal to improve our business performance. The change was introduced as part of NI Water's strategic themes of which one was 'People' which covered absence reporting. The change was made to provide further insight and data to support decision making and problem solving, alter time/resource balance from compilation to analysis of data and to automate reporting. The previous report was re-built and re-worked in Power BI as part of a dashboard suite of reports rather than the previous method of displaying a PowerPoint presentation operating independently. Further information was also reported on in more detail on a quarterly basis.

Our attendance rate has increased from 96.3% in 21/22 to 96.7% in 22/23. This represents a reduction in our sickness by 10% year-on-year.

Absences due to Covid-19 fell in 22/23 but there were still 215 employees off work with Covid and this contributed to 1329 working days lost, this compares to the previous year where 259 employees were off work with Covid-19 related sickness and 1914 working days lost in total. 13% of the working days lost total was due to Covid-19 in 22/23 compared to just over 17% of the total working days lost in 21/22.

Cold/flu/respiratory illnesses continue to be low but showed an increase from last year. 431 working days were lost to these illnesses during 22/23, compared to 328 during 21/22.

It should be noted when considering the above figures in relation to Covid-19 and other cold/flu/respiratory illnesses that free Covid tests which helped determined the illness specifically were discontinued by the Department of Health in August 2022.

Psychiatric/psychological absences remain the highest reason for days lost due to sickness in 22/23 at 26.0% but this is a decrease from 21/22 when the percentage of total working days lost was 28.8%. The number of working days lost though for Psychiatric/psychological absences decreased from 3154 in 21/22 to 2653 in 22/23.

In other areas, there was also a pattern of decreased sickness including Blood & Cardiovascular absences which have dropped by 25% year-on-year. There were however

increase in Nervous System disorders and Digestive, Endocrine and Renal absences. There were two deaths in service this year.

Frontline operatives attended yearly medical assessments for Hand Arm Vibration, audio and working in confined spaces. NI Water also provided medical assessments for driving and HGV which is currently carried out by occupational health providers.

At NIW we make safety, health and wellbeing of our people a strategic priority. The wellbeing strategy is designed with our employees and is based on the premise that prevention is better than cure, removes stigmas & actually saves lives. We are recognised as an example of best practice in business excellence and care for its people through achieving numerous business awards including the 2022 Belfast Telegraph's 'Excellence In Workplace Health & Wellbeing' award, Wellbeing At Work Award (Business in The Community) and Promoting a Positive Workplace Culture (Inspire Wellbeing). We have just been shortlisted for Wellbeing at the Irish News Awards and await the outcome of that.

Focused on **4 pillars of health** (mental, physical, social, financial) the wellbeing strategy enables NIW to perform and deliver exceptional customer service. We begin by looking after our employees' health and in this post-pandemic era, this strategy has an increased focus on issues directly affecting them.

Our approach is to support our people through all of life's events. Offering a vast array of flexible and family-friendly policies for a better work-life balance complemented by seasonal health campaigns (Winter Wellness, Spring Forward, Summer Sizzlers and Abundant Autumn) featuring a targeted program of events. Interventions include inspirational speakers discussing a range of topics complimented by two bi-annual 6 week 'Live Well' roadshows offering 20+ events each including 1:1 health check, vaccines, massage, eyecare, cancer screening, BP & AF testing etc. More recently a key theme is **supporting our aging workforce** with pension workshops and programmes offering practical advice as well as 1:1 counselling.

Communication channels promoting the program include 'Source' wellbeing site, eye-catching e-poster campaigns, targeted emails, texts, monthly Team Talks, virtual Town-Hall meetings and 'Waterline' magazine. Recorded virtual gym sessions (HIIT and Yoga), walking challenges, smoking programmes are all available on an online catalogue.

18 **Hobby Buddy Networks** provide much needed social support through carers groups, cook-alongs, runs, book clubs, CSR, beekeeping etc. Recently, in response to employee feedback, we have introduced the world leading 'Netflix of Wellbeing' **Digital Health Platform** in partnership with 'Champion Health' giving 24/7 personalised access to an app that is not only accessible to our employees but family and friends too! Enhancing communications with our frontline colleagues who are typically hard to reach, offers masterclasses with world-leading experts to improve sleep (shift workers) exercise, menopause, nutrition and weight management programmes. Anonymised data giving real-time insights, analytics and detailed reports helping to continue data driven decisions.

The H&WB Manager attends frontline SMT meetings to encourage participation and recently we called 100's of frontline employees, asking them what they want to see in their wellbeing programmes. The new addition of 'Thrive', a state-of-the art booking system enables an easy search and sign-up to activities **doubling attendance numbers** on sessions also helps to further analytical insight into trends with a 'dashboard' to help create, view and manage the opportunities.

Identifying **real-life stories** across our workforce, bringing them to the masses via video is **our biggest win!** Storytelling delivers important health messages, creates a culture of openness, normalises conversations around previously deemed “sensitive” health and social issues. Stories on mental health, bereavement, addiction, domestic violence are changing NIW culture and are unprecedented amongst a workforce where, “these things weren’t talked about”. ‘Men’s Health Week’ features 5 frontline colleagues speaking openly including an employee who had attempted suicide on multiple occasions, suffering in silence for over 40 years.

Our programme is informed by analysis of absence data, surveys, polls and focus groups to understand the variety of needs across our diverse workforce and in turn offers a range of delivery channels ensuring widespread benefit.

This approach goes far beyond a health poster campaign, highlighting key issues we all face, helping build a happy, healthy, safe, resilient workforce and culture of looking after each other.

Line 6 – Total RIDDOR (and >3 Lost Day) Incidents

The NI Water procedure for reporting of all incidents is set out in H&S Procedure PRO 008 within the NI Water Health & Safety Manual, (rev. October 2014). All incidents and near misses must be reported to line management as soon as practical, and at least within 24 hours of any incident. An electronic Risk Management and Reporting System (ASSURE) was utilised for recording and tracking of all incidents.

It is the relevant Line Manager’s responsibility to ensure all incident details are recorded and managed within the Assure system.

Assure entries are monitored by NI Water’s Health and Safety Team with statistical safety performance and trends presented monthly by the Head of Safety to the H&S Focus Group, Executive Committee and Board for consideration and discussion.

There were 6 RIDDOR (greater than) >3 Lost Day reportable incidents within NI Water during 2022/23, all of which resulted in more than 3-day work activity-related absences.

Incident Ref	Date of Incident	Brief Description	RIDDOR Classification
INC-000320	10/05/22	Wastewater – IP injured side/chest whilst clearing debris from Post Settlement Tank channel.	> 3 days
INC-000328	16/06/22	Wastewater – IP suffered injury to his finger when lifting cover at inlet sump.	> 3 days
INC 000357	08/08/22	Networks Water - IP was investigating a run of water, he climbed over a field gate and misjudged his landing injuring his ankle.	> 3 days
INC- 000365	08/09/22	WW Networks -IP injured back while lifting Ni Water inspection cover, on customers property.	> 3 days
INC 000433	18/01/23	M&E fitter fell after slipping on ice, hurting his knee and back	> 3 days
INC 000442	01/02/23	Meter & billing operative slipped on a piece of wood and fractured ankle.	> 3 days

NB: NI Water reports all over 3-day incidents under the RIDDOR (Northern Ireland) Regulations, whilst mainland GB reports on over 7 day absences, in line with recent legislative changes affecting only GB.

Line 7 – RIDDOR Rate per 1000 employees

The process, as described for Line 6 above, provides the total number of RIDDOR (>3 day) incidents, whilst the denominator, the total number of employees, has been calculated by the Human Resources (HR) Directorate as 1395. This gives the RIDDOR Rate per 1000 employees as 4.30 for 2022/23.

Line 8 – Greater than (>) 3-day Incident Rate per 1000 employees

As all RIDDOR incidents refer to incident-related absence (ref. line 6 commentary), the information in Line 8 mirrors that of Line 7.

Line 9 – Major Fatal Incident Rate per 1000 employees

The information gathering process is again as described for Line 6 above. No fatal injuries occurred during 2022/23.

Lines 10 – 14 - Contractor Lost Time Incidents

Contractors continue to be managed and directly engaged on a wide range of work activities, projects and contracts on behalf of NI Water. However, core activity, from a Health and Safety perspective relates only to the assistance given by contractors in relation to the provision of water and sewerage services and includes contractors engaged in the construction of new works (ref. line 15 commentary). NI Water has, throughout 2022/23 been engaged in a continuing process of change, regarding the numbers of contractors assisting in asset delivery and improvement of this core activity, as efficiency measures continue to be put in place,

Given the changing nature of contract provision as outlined above and the variety of work undertaken, NI Water has no available methodology for calculating and determining accurately the number of contractors' staff engaged in all core related activities and this is unlikely to change in the short term.

Line 15 – Contractors' RIDDOR Reports

The Northern Ireland public regards all work related with water and sewerage services, including design and build work, to be closely associated with NI Water. NI Water, in turn, recognises its own duty of care to all of its contractors as a client organisation when they are carrying out work and therefore sees its duty as one of leadership. NI Water therefore maintains a record of monitoring on all contractor and subcontractor reported incidents, which includes all incidents relating to transient workers. NI Water encourages and requires the reporting of all near-miss incidents involving contractors to facilitate a shared learning experience, in line with NI Water's 'Zero Harm' ambition.

All Contractor and subcontractor incidents are recorded on Assure. For 2022/23 the total number of RIDDOR related incidents reported to NI Water by all contractors was 5. This was an increase in reports compared to 4 reported incidents last year. Contractor performance continues to be monitored by NI Water's H&S Focus Group, by Executive Committee and by Board at their monthly meetings. On a Quarterly basis Risk Committee also consider and review safety performance, recent incidents and trend analysis of both NI Water staff and contractor performance.

Incident Ref	Incident Date	Brief Description	RIDDOR Classification
INC-000316	12/04/22	AD Capital Project. Operative twisted his left knee while kneeling in a manhole to manoeuvre a piece of lightweight corri-board. Operative transported to hospital by van and was absent >3days due to Easter holidays.	> 3 days
INC-000359	08/08/22	IP entered a restricted section of the site and fell through an opening in a tank under construction injuring his cheek and shoulder. Attended A & E	> 3 days
INC:000380	06/10/22	Newtownbreda WwTW Base Maintenance Project – While working in final settlement tank, IP was struck by section of falling pipe.	> 3 days
INC 000432	16/01/23	Contractor Labourer (EC) lost his footing due to frost/ice, hurt knee (60 days lost to date).	> 3 days
INC 000475	21/3/23	Contractor IP climbed over a barrier to access boundary valve. He put his foot on grass, rolled his ankle and heard a snap. He went to hospital that night and was diagnosed with broken ankle.	> 3 days

Lines 16 - 17 – Contractor RIDDOR and >3 Day Incident Rates

Information is not collected for this line, as NI Water has no available methodology for calculating and determining accurately the numbers of direct contractor employees working on all NI Water contracts. Incident Rates therefore become difficult to calculate.

Line 18 – Contractor Major Fatal Incident Rate per 1000 employees

There were no fatal incidents connected with NI Water contractors /sub-contractors, including transient workers, during 2022/23.

Table 42 – PPP Reporting

Company Specific Commentary Obligations

Preface:

The Company highlights that on the 19 November 2017 a newly formed holding company subsidiary, NIW Clear Ltd, acquired sole ownership of both the Alpha PPP Contractor (Dalriada Water Ltd) and the Alpha PPP Operating Company (Kelda Water Services Alpha Ltd). These entities were acquired through a competitive bid process conducted by the previous owners, Kelda Water Services Ltd, which commenced in December 2016, following Kelda's announced sale of all their UK PPP/PFI water and energy commitments in September 2016. Post-acquisition, the contractual arrangements between the parties, including the senior lenders, has remained in place. There are no plans to collapse the Alpha PPP contract.

The reporting arrangements in Table 42 below remain unaffected by the acquisition and subsequent continuation of the existing commercial arrangements.

Service Dates

No Change

Line 7 - Unitary charge capacity (No change to methodology)

The Unitary Charge Capacity Charge applies to Alpha only. The data used is derived from the invoices received from the Contractor, which separates the Unitary Charge Capacity Charge from the Unitary Variable Charge and the relevant Unitary Charge Performance Deductions, all in accordance with the Payment Mechanism Schedule of the Contract. Costs have increased by 11.6% (£21.353m vs £19.137m in AIR22) due to an inflationary uplift in tariffs plus a full years' application of a 16% sculpting increase (applies from 1 Oct 2021)

Line 8 - Unitary charge variable (No change to methodology)

The Unitary Charge Variable Charge applies to all three PPP Contracts. The data used is derived from the invoices received from the Contractor which set out the Unitary Charge Variable Charge claimed. There are no payments in respect of the Ballynacor Sludge Facility and the Duncrue St Sludge Facility, rather a payment in respect of the Sludge Disposal Services.

In total, costs on this line have decreased by 7.9% from the previous year, driven by a combination of inflation and flow variations in the year. In terms of flow variations, the movements are as follows:

Alpha – variable costs have increased by 8.6% (██████████ vs ██████████ in AIR22). Although DI from the Alpha sites reduced by 5.7% (278.3 ML/D vs 283.2 ML/D in AIR22), tariffs were uplifted by 9.1% in April-22 based on Mar-22 RPIX.

Omega – variable costs have increased by 8.3% (£28.871m vs £26.661m in AIR22). This is made up of costs in relation to wastewater and Sludge Disposal Services (SDS) as follows:

- Wastewater - flows have increased by 7.3% compared to the previous reporting year (33.8 Mm3 vs 31.5 Mm3 in AIR22) which may be linked to increased rainfall in the reporting year which was 13.2% higher than the prior year. Overall, there was a 13.9% increase in variable costs (██████████ vs ██████████ in AIR22). This includes the impact of tariffs which were increased by 13.5% in Jan-23 (based on Nov-22 RPIX) following a 7.2% increase in Jan-22.

- SDS – sludge volumes have remained at AIR22 levels with only a 1.1% reduction since AIR22 (36.5k TDS vs 36.9k TDS in AIR22). There was a 1.0% increase in variable costs (██████████ vs ██████████ in AIR22)

Kinnegar – variable costs increased by 1.4% (£2.360m vs £2.324 in AIR22).

Line 9 - Unitary charge deductions

By contract definition, where the PPP Contractors invoice to an amount higher than the amount payable in accordance with the relevant Payment Mechanisms, the variance becomes a disputed amount. The Company recognises the disputed amount as an outstanding liability until such time as the Parties choose to have the dispute determined or agree an amount for payment with credit note issued for closure as appropriate.

Alpha

The Alpha Contractor, through engagement, invoices to the agreed amount which includes the relevant Performance Deductions. These Deductions are in accordance with the Payment Mechanism for failure events identified and can be separated by Facility (Scheme) as per the Payment Mechanism. Performance deductions in the reporting year were ██████████, a reduction of ██████████ on the prior year amount of ██████████.

Omega

Following the settlement agreement, Glen Water have commenced declaring performance deductions on their monthly invoices. In the AIR23 period £47k of deductions were declared (£85k reported in AIR22)

Kinnegar

No performance deductions reported.

Line 10 - Atypical expenditure

Alpha (£0.656m)

	£m
Quality Monitoring Change credit	-0.552
EIB Step-down	-0.094
Refund in respect of reorganisation costs	-0.076
Total	-0.722

- As a result of the Quality Monitoring Change to the Contract an amount is deducted from the Alpha monthly invoice to reflect the reduced costs from lab services being carried out in house by NIW. The deduction amounted to £0.552m in the reporting year.
- In 2021/22 a reduction of £0.094m was realised in the unitary charge tariffs resulting from the EIB step-down. This was a pre-set change in the 45% finance provided by EIB, conditional upon achieving operational performance and Special Purpose Company (SPC) debt cover ratio targets.
- An agreement is in place to provide for a change in unitary charge arising from the lower number of TUPE transferees than that anticipated at financial close. The parties have agreed to reflect the variance in semi-annual Project Costs as per the Financial Model by making adjustments in the monthly invoice at the end of each Semi Annual Period. To this extent the repayments made in the reporting year were £0.076m.

Kinnegar [REDACTED]

Relates to release of CSP monies withheld in previous years.

Omega [REDACTED]

	£m
Supplemental 4 agreement	[REDACTED]
Change in calibration frequency	[REDACTED]
Omega Settlement Accounting	[REDACTED]
Belfast WWTW Indigenous Sludge Shortfall Liability	[REDACTED]
Other	[REDACTED]
Total	[REDACTED]

- As a result of Omega Supplemental Agreement 4, executed in 2011/12, an amount is deducted from the monthly invoice to reflect the change in wastewater flow management performance requirements. The deduction amounted to [REDACTED] in the reporting year.
- During 2013/14 a service level change was implemented relating to the frequency of calibration of the Sludge Cake Weighbridge at Duncrue St. This resulted in a [REDACTED] saving in the reporting year.
- Omega Settlement Accounting – IFRS accounting adjustments agreed with external auditors – relates to movement in constructive liabilities.
- Belfast WWTW Indigenous Sludge Shortfall Liability – relates of accrual made in prior year.
- Other – relates to prior year credits and other minor costs including out of spec sludges at the Kinnegar site.

Line 11 - Efficiency Gains

The Company has transferred the cost risk of service provision (other than where relating to a Change in Law) to the Concessionaires, excluding the cost of electricity in Alpha and Omega. In so doing, the Concessionaires carry the downside risk of costs materializing and the benefits where they do not. The Company does not have the right to cost savings for **the same level of service** where the contractor has internally identified means of securing such savings.

Post procurement any reduction in the Company PPP Unitary charge costs (whether identified by the Company or the Concessionaires) emanate only from a Change in the level of service.

The following Changes for cost reduction have resulted in efficiency gains in the reporting year against the baseline contract at award:

Alpha (£0.645m)

The reorganisation costs credit (£0.094m), quality monitoring change (£0.551m) all detailed above are efficiency gains arising in the reporting year.

Omega [REDACTED]

Supplemental Agreement 4 executed in 2011/12 reflecting a change in wastewater flow management performance requirements resulted in a [REDACTED] deduction in the reporting year.

The change in weighbridge calibration frequency implemented in 2013/14 resulted in [REDACTED] of savings.

Kinnegar

No Contract Changes for cost reduction have been implemented during the Reporting Period.

Line 13 - Capital repayments

This line reflects the element of unitary charge payments allocated as capital repayments of the finance lease creditor. The data is consistent with the Company's financial accounts. The site split of the capital repayment is calculated as follows:

Alpha:

Capital Repayment and Interest						
	Capacity Charge by Site	L14 Capital Maint	Capacity Charge less Cap Maint	Pro Rata		
				Interest	Capital	
Dunore Point	6,661	568	6,093	1,616	1,552	
Castor Bay	5,973	481	5,491	1,457	1,398	
Moyola	2,748	201	2,547	676	649	
Ballinrees	3,654	265	3,389	899	863	
Ballymoney LM	675		675	179	172	
Limavady LM	818		818	217	208	
CB to FB LM	824		824	219	210	
	21,353	1,516	19,837	5,263	5,052	

Omega:

Allocation of capital repayment & interest			
	Initial Capital	Capital Repayment	Interest
Richill	[REDACTED]	[REDACTED]	[REDACTED]
Armagh	[REDACTED]	[REDACTED]	[REDACTED]
Ballynacor	[REDACTED]	[REDACTED]	[REDACTED]
NDA	[REDACTED]	[REDACTED]	[REDACTED]
Ballyrickard	[REDACTED]	[REDACTED]	[REDACTED]
SDS	[REDACTED]	[REDACTED]	[REDACTED]

(The above tables are extracted from an excel spreadsheet with totals based on rounded values, figures expressed in £'000)

Line 14 - Capital maintenance

Capital maintenance is allocated straight line across the life of the contracts following a change implemented in 2013/14. This correctly reflects that the unitary charge does not fluctuate with changes in the capital maintenance spend in any year. This straight line amount has been allocated to the sites on the basis of the total amounts included in the original financial models as follows:

Alpha:

Capital Maintenance			
	To End per Fin Model	After Indexation	2021/22
Dunmore Point	6,407	10,510	568
Castor Bay	5,429	8,904	481
Moyola	2,272	3,727	201
Ballinrees	2,985	4,897	265
	17,094	28,037	1,516

Omega:

Allocation of Capital Maintenance			
	Capital Maint	Capital Maintenance	
Richill			
Armagh			
Ballynacor			
NDA			
Ballyrickard			
SDS			

(The above tables are extracted from an excel spreadsheet with totals based on rounded values, figures expressed in £'000)

Line 16 - Atypical payments capitalised

Nil

Line 19 - Interest

On adoption of IFRS in regulatory reporting in 2018/19, all contracts are now on-balance sheet and for each, the Company has recognised a finance lease creditor on its balance sheet. Entries to this line represent the notional interest on the finance lease. The data is consistent with the Company's financial accounts. See line 13 above for site allocation workings.

Additional Information - Consistency with the Company Accounts

The total unitary charge by contract reported in Table 42 is consistent with NIW's audited accounts. Following the move to IFRS reporting within AIR all contracts are now on balance sheet and residual interest is no longer reported.

In line with the guidance, a breakdown of the accruals / intercompany balances included in the year-end accounts in relation to each of the PPP contracts is as follows:

Figures in £'m	Alpha	Omega	Kinnegar	Total
	£m	£m	£m	£m
Unitary Charge	2.040			
Disputed Amts	0.000			
Claims	0.000			
Other	0.000			

Of the [REDACTED] included for Omega, [REDACTED] relates to the outstanding monthly unitary charge invoice for March 2023 which was unpaid at 31 March 2023. Also included in this amount is [REDACTED] of additional unitary charge arising from the Ballynacor TDS mandatory contract change which became effective from 1 April 2010 and was agreed during 2013/14.

Contracted Adjustments to Payment Mechanisms

Omega: The Company has notified a change in the requirements for Faecal Coliform performance at North Down Ards WWTW in line with its contractual entitlement. This has resulted in the predetermined [REDACTED] reduction in Unitary Charge on every day outside of the regulatory Bathing Season coming into effect since September 2011.

The Company and the Contractor have agreed the outcome of the mandatory process to correct Ballynacor tariffs and tariff bands in the event that the actual DWF encountered was similar to that determined in the pre contract Flow surveys, and not as low as that upon which the Contractor conditioned his bid tariffs upon. The result of the process is that the tariff for Ballynacor flows is marginally reduced for the remainder of the contract with effect from 1st January 2014.

The Company and the Contractor have engaged regarding the Contracted change [Schedule Defined] to the Sludge Lagoons at Ballynacor; which was valued at [REDACTED]. This has been effectively complete in Autumn 2015, the remaining [REDACTED] to finalise [Landscaping] was completed by August 2016.

Alpha: The EIB Step Down clause has become effective in the Alpha contract, with a resultant reduction in European Investment Bank interest charging to Dalriada Water, and the Unitary Charge being reduced by the predetermined contractual amounts for the remainder of the EIB loan period (2027). The amounts are, by agreement, deducted monthly from invoices rather than driving a new Unitary Charge tariff at considerable project expense (and loss of benefit).

Changes to the Contracts

- **Omega: Supplemental Agreement 3**
This was executed during August 2011 to clarify the sludge performance requirements and deal with commercial matters surrounding uncertainty of sludge services performed in AIR11 period.
- **Omega: Supplemental 4**
This was executed on 6th April 2012. It clarified the wastewater treatment flow management requirements to a measurable output, and in so doing dealt with the commercial issues surrounding disputed underperformance and payment entitlements in this area since May 2008. The Agreement also enabled the Company to reduce its monthly unitary charge liability by [REDACTED] (indexed) for the remainder of the contract term. A further passing down of rights and obligations in respect of NIE easements was included.
- **Omega: Change in Contractors Proposals – Duncrue St Centrifuge**
In December 2012 the Company accepted a change in the contractor's asset base at Duncrue St, whereby the Contractor installed a Centrifuge in preference to the four

belt presses inherited at Service Commencement. Whilst this improvement was funded by the Contractor and not the Company, the Company established an estimated change in electricity consumption liability and the Contractor agreed to fund the additional consumption at current tariffs (+ indexation), through a new payment Clause in the contract – consistent with the risk allocation at contract award.

- **Omega: Ballynacor Sludge Dewatering Plant Change**

A pre-determined Change in the sludge disposal tariff arising from the underperformance of the Company's new Ballynacor Sludge Dewatering Facility following its initial commissioning in 2006/ 2007 during contract negotiations. The Omega contract was awarded on the understanding the new plant would be capable of producing >22% DS content in the years preceding Service Commencement.

As was the case, records demonstrated the Company was only capable of achieving 19.6% DS operation during this period.

The pre-determined (as agreed at Contract Award) cost reimbursement mechanism applies with the result that a schedule of semi-annual additional payments take place, dating back to Service Commencement in March 2010.

Whilst the Contractor initially disputed the sums due, they finally conceded Company's valuation of such historical and future payments in September 2013.

The cost of this mandatory change is approximately [REDACTED] (indexed) every semi-annual period until contract expiry in 2032.

- **Omega: Duncrue St Weighbridge Calibration Change**

The weighbridge is integral to the determination of tonnes dry solid sludge for disposal and thus payment. The weighbridge is calibrated weekly and has never been outside calibration since first used in March 2010. The parties have agreed a cost reduction measure reducing the calibration to every 3 months. The cost saving to the Contractor is [REDACTED] and is shared 50:50 with the Company. The arrangements have been in effect since 3 December 2013.

- **Omega: Duncrue St Condenser Change**

An Authority Change issued in advance of Service Commencement in 2009 to deal with a defective existing asset. Whilst the work was completed in 2009 the costs were only agreed in late 2013, with payment by the Company in 2014/15

- **Omega: Small Works NDA Access Change**

A [REDACTED] Change to pay for securing alternative access road at North Down Ards; a legacy from Water Service Deed of purchase of NDA lands in 2005 where the seller had the right to close up existing NDA access and provide alternative access and a Deed of Easement. Work is complete and payment has been made.

- **Omega: Richill DWF Change**

The DWF into Richill WWTW is lower than anticipated at commercial close, resulting in an unjust negative payment to the contractor at low flows due to a pre-agreed constant value for 0.8DWF. The parties have agreed an alternative value for the constant in the payment mechanism.

- **Omega: Donaghadee PS ICA Change**

The Contractor offered and the Company accepted an energy saving change in the control of Donaghadee PS. The Company invested [REDACTED] in the project which has a payback in terms of electricity costs of <2 years. The project was delivered at the start of the AIR18 period.

- **Omega: Ballynacor WwTW Increased Capacity for Trade Effluent**

At contract formation in 2007, the Company purchased a headroom for Trade Effluent of 500,000kg COD at Ballynacor WwTW for the term of the Contract. In 2016 the Company granted a Trade Effluent Discharge Consent to a trader in the Ballynacor Catchment which, in aggregate with all other active consents, has resulted in the purchased headroom being exceeded. This has triggered the Company's contractual liability to extend the treatment capacity. The parties are in discussion as to the most appropriate means of dealing with the fact that NIW now requires increased Trade Effluent capacity for the remaining term of the Contract.

- **Omega: Energy Gains Projects 2020**

The Company has elected to invest ██████ in a series of energy improving asset amendments identified by the Contractor as part of its annual obligation to review and suggest energy improvements. These included the syphon discharging at Bullayshill PS, SBR optimisation at North Down WWTW, pump control optimisation at Briggs Rock PS, Actuator controls at Armagh WWTW, and LED lighting at Duncrue ST Sludge Facility.

- **Omega: Settlement Agreement 17 August 2021**

The Company has entered into a settlement agreement in respect of the outstanding claims and rights of both parties at 17 August 2021. The main elements of the agreement are:

- All parties have ceded all historic rights of claim/ counter claim, with minor specified exceptions
- The Company has made a payment of ██████ to Glen Water
- The Company and Glen Water have entered into an amended and restated Contract with the following key amendments:
 - Glen Water shall spend approximately ██████ in (i) enhancing the hydraulic and treatment capacity of Ballynacor WWTW (ii) enhancing the dry solids content output of Ballynacor Sludge Facility (iii) enhancing the dry solids quality and asset resilience at Duncrue St Sludge Facility (iv) improving the Duncrue St steam turbine output and (v) measuring the real time influent loading at all Omega WWTWs.
 - Sharing the benefits of electricity generated & ROC's from Duncrue St turbine
 - Redefining the triggers and processes for growth investment in WWTW
 - Realigning contract performance to WOC/IPPC standards
 - Resetting the standard of Company's sludge

- **Omega: Discriminatory Change in Law: Incinerator BREF Change**

The Contractor has served an indicative Notice that a Change in Law has occurred with the introduction of new Best Available Technology guidance for incinerator emissions (BREF) due to come in force by December 2023. Work continues to assess the impact of the change on both monitoring and abatement of emissions, both of which will be for the Company's account. A final costed submission is expected in Q2 of AIR24 period.

- **Omega: Change to definition of Trade Effluent consents**

Change made to the trigger level of Fats Oils Grease (FOG) levels which trigger a consultation with the Contractor before a traders in Omega catchments are issued with a Trade Effluent Consent.

- **Kinnegar: Supplemental Agreement 2**

This commercial agreement resolved historical disputed payments, along with affecting a new odour model for the works and creating new contractor obligations in terms of regulatory reporting and sampling consistent with current Company obligations not envisaged at the time of procurement.

- **Kinnegar: Clause 10 Payment**
 A Variation was required in relation to the provision of the Hollywood C Pumping Station by NI Water E&P, requiring part of the Leased Premises being returned to Company occupation, and the reimbursement of the Contractors costs with altering the necessary sewerage infrastructure. These costs amounted to [REDACTED] [REDACTED]. This value was paid to the Contractor on 30th January 2015.
- **Kinnegar: Financial Model Storage Arrangements**
 The Company and the Contractor have terminated the arrangements to keep a copy of the financial model with a third party.
- **Kinnegar: Early Debt Repayment Change**
 The Contractor has repaid the outstanding senior debt 15 months earlier than required.
- **Kinnegar: Lease Change 2020**
 The parties agreed to amend the Lease to allow for a contractor related affiliated company to be engaged by the Company to provide an electrolyser demonstrator project on the site. This project has no other impact on the PPP services.
- **Kinnegar: Change to Treated Effluent Sampling Frequency 2022.**
 In response to resourcing issues within the Company's UKAS accredited laboratories, the frequency of treated effluent contract sampling has been reduced from 7 days per week to 5 days per week (Mon-Fri). The contractor has accepted performance is still measured 7 daily, with the weekly average being applied as the Sat/Sun performance.
- **Kinnegar: LWWP Upgrade Project- Support Costs 2022**
 A number of Variation Orders were issued to provide supporting resources and clearance works on site to enable the Living With Water Project Team to assemble design information for a future works upgrades.
- **Alpha Deed of Variation No.3**
 Amended and restated the contract in respect of all previous changes and corrections made to date.
- **Alpha Contractor Notice of Change (June 2012):**
 Reduced the scope of service (i.e. frequency and range of analytical tests) to achieve cost reduction in Unitary charge for the remaining contract period (Deriving £16,800 per year reduction in Company costs).
- **Alpha Contractor Change: Standby Generator Capacity for NI Power Grid**
 A contract change has been put in place to allow the Contractor to make the site generators at two WTW's available to an Aggregated Generation Unit (AGU) company in return for an 'availability charge'. The annual availability charge is estimated to be worth up to £20,000, with 50% of this revenue being netted off the Unitary Charge payable by NIW for the period of the AGU agreement (currently 5 years).
- **Alpha: Authority Change – Castor Bay to Belfast Pumping Station Upgrade**
 To support the increased output to Magheraliskmisk arising from the Castor Bay to Belfast Strategic link main project.
- **Sale of Kelda's ownership of the Contractor / Operating Company**
 In September 2016, Kelda indicated it was looking to sell all its UK PPP/PFI investments and operations. It invited several parties, including NIW, to bid for the Alpha PPP companies Dalriada Water (the Alpha PPP Contractor) and KWSA (the Alpha PPP Operating Company).

On 19 November 2017, NIW clear Ltd (a subsidiary holding company of NIW Ltd) acquired ownership of Dalriada Water and KWSA (now renamed NIW Alpha Ltd) from Kelda.

The Alpha PPP contract remains in place and the Company continues to pay Unitary Charge tariffs for the volume of water provided by the Contractor, Dalriada Water Ltd. The Contractor continues to engage the services of the Operating Company (NIW Alpha Ltd) for service delivery and continues to service the senior debt liabilities with the lenders. The contract commitments between the parties remain unaltered at the point of new ownership.

- **Reduction in Frequency of Water Quality Monitoring**

In 2019, the Company and the Contractor have reduced the frequency of Water Quality monitoring within the Contract down to regulatory frequency to align with all monitoring costs of non-PPP WTWs.

- **Temporary Reduction in Water Quality Performance Measures**

In early 2020, the Company agreed to a request to lessen the water quality performance requirements on a temporary basis to establish if the operating company could reduce its external operating costs, thereby reducing the overall Company costs for water treatment provision at the PPP facilities. The pilot change ran for 12 months and on unsuccessful completion in February 2021, the contracted performance standards reverted.

- **Deed of Variation No.5 – Ballinree’s Authority changes**

The Company issued 2 simultaneous changes relating to Ballinree’s WTW access rights, in order to allow itself to (i) carry out pilot studies into pesticide/taste & odour treatment options, and (ii) construct a mobile pumping station for resilience/ drought mitigation purposes.

- **Deed of Variation No [TBC] – Insurances Deductibles Change**

Due to market changes, the low level of excess on Physical Damage (PD) cover demanded of the PPP contract could not be secured at market rates. Consequently, the Company chose to issue a change to the contract terms that requires the Company to take the additional excess risk rather than the Contractor. This approach avoided its Contractor (also its subsidiary) incurring highly increased premiums for no benefit other than to satisfy Lenders terms. Note The level of PD excess exposure for the Company is now consistent for all non-infrastructure assets across the Company and its subsidiaries portfolio of clean water asset insurance.

- **2021 NTU Target Change**

A change in the measured target level performance for turbidity to reflect changes to “Blue Book” laboratory testing processes and achievable limits of detection for turbidity results

- **Deed of Variation No.6 – 2021 Energy Project Works Change**

A change to allow the Company to enter the sites and invest in the following Capital Works Projects:

- River Bann Pumping Station Pump Efficiency
- Moyola WTW LLP Efficiency
- Castor Bay LLP Main – Drought Resilience
- Castor Bay – Magheraliskmisk Pump Capacity Upgrade

- **Deed of Variation No.7 – 2022 Ballinrees MCPA Works Change**

A change to allow the Company to enter Ballinree’s WTW to construct all necessary assets to improve the regulatory performance for pesticides namely MCPA before the regulatory commitment of 23 December 2023.

Contractual Performance Failures during AIR22 Period

Alpha Performance Deductions: 2022/23

- Water Quantity failures can be referenced (on a monthly basis) in the Payment Calculation Schedule Tab 5 spreadsheet under the column heading 'CRF' for each Facility. *(The Company can provide supporting information with all 12 monthly Payment Calculation Schedules for the AIR year). Total deductions: £1,239,091.76 [AIR22 period total deductions £1,292,753.46]. This reflects the continued concerns around the available maximum capacity of Castor Bay WTW on a recurrent basis, being constrained by the limitations on both LL pumps and pumping main, all of which are being addressed by the Company's capital investment for Drought Resilience at Castor Bay (Deed of Variation 6 above in Contract Changes refers).*
- Water Quality Failures can be referenced on Payment Calculation Tab 9 under the column headed 'QRF' for each Facility *(The Company can provide supporting Information with all 12 monthly Payment Calculation Schedules for the AIR year). Further details of the exact water quality parameter failed result can be referenced on the monthly Exceedance Reports derived from the Company's LIMS system (The Company can provide supporting Information will all 12 LIM's Exceedance Reports for the Alpha Facilities. Total deductions: £253,109.09 [AIR22 period total deductions £214,839.19]. This return to the normally static trend of level of water quality deductions correlates to a combination of the removal of the temporary relaxation of contracted Water Quality standards and the 2021 NTU Target Change (see Contract Changes above) rather than any specific improvement or deterioration in assets or operation.*

Kinnegar Performance Deductions 2022/23

The Company had determined that there had been no deductions applicable during the AIR23 period. *[AIR23 period ██████████ total deductions].*

Omega Performance Deductions 2022/23

- The Company has determined, and the Contractor has accepted the following failures on the Wastewater services during the period:
 - SR1 Deductions applied at Duncrue Street [Apr 2022]: ██████████
 - OR1 Deduction applied at Bullays Hill [May 2022]: ██████████
 - OR1 Deduction applied at Bullays Hill [July 2022]: ██████████
 - OR1 Deduction applied at Bullays Hill [Oct 2022]: ██████████
 - OR1 Deduction applied at Bullays Hill [Nov 2022]: ██████████
 - OR4 Deduction at Ballyrickard WwTW [Feb 2023]: ██████████
 - OR1 Deduction at Bullays Hill [Mar 2023]: ██████████
 - FM7 Deduction at Briggs Rock SPStn [Mar 2023]: ██████████
- The Company has determined but the Contractor has not accepted the following failures on Wastewater Services during the period:
 - None.
 -

Contractual Deductions made

- Project Alpha as per Line 9 reporting for each Facility, based on the outputs of the monthly Payment Calculation Schedules.
- Project Omega; There were no disputed deductions applied during AIR23. The remaining disputed sums, those of previous AIR periods, which totalled ██████████ have been subject to waivers being granted and payments of ██████████ and ██████████ were made to Glen Water which effectively leaves an amount of ██████████ still disputed. These values are not credited and are not therefore reflected in Line 9.

- Project Kinnegar; The Performance Deductions during the AIR23 period equates to [REDACTED] [REDACTED] AIR22].
- **Equipment breakdowns**
 - The Company does not hold this level of operational detail as the risk has been transferred to the Contractors and passed down to the Operating sub-contractor.
- **Changes to the Descriptive Reports on the PPP Contracts**
 - There have been no further changes to the Alpha, Omega and Kinnegar Descriptive Reports, the record drawings for the replacement Holywood 'A' to Kinnegar WwTW pumping main was laid adjacent to the original pumping main ensured that the layout drawing doesn't require to be modified.

Line 21 - Distribution input

Data has been updated to reflect the methodology in Table 10 Line 26, where the variance in demand from the PPP sites placed by the Company, along with the variation in total water into distribution delivered by the Company contrive to give a new calculated figure for the individual sites and the Alpha contract as a whole. As a reassurance, the Ballinree's WTW Distribution Input for AIR22 was 10,777 Ml while the Distribution Input for AIR23 was 10,805 Ml which resulted in 29.53 Mld average to supply during AIR22 and 29.60 Mld average to supply in AIR23. Please refer to Line 27 for further commentary on Ballinree's APH.

Line 21a – Water treatment works capacity

There has been no change to the minimum required capacity of the Alpha WTW under the contract.

Line 22- Length of mains

This data has not changed since AIR22.

Lines 23 – 24 - Turbidity

Background – Year on Year

During the period 2005 to date, a number of non-compliant water treatment works (WTWs) and small sources have either been completely replaced with new works, or else taken out of service as and when a replacement supply is available. During 2008, 5 existing major WTWs were replaced/upgraded as part of the Alpha PPP project. This contributed to the closure during 2009 of 6 non-compliant small water treatment works/sources.

During 2010 a further 2 non-compliant small water treatment works/sources were also closed. However, these were temporarily reinstated during the 2010-11 freeze/thaw incident to supplement strained water supplies.

During 2011 a further 3 non-compliant small water treatment works/sources were also closed.

During 2016 one further non-compliant small water treatment works was also closed.

At the end of 2016, the WTWs in service were stabilised with 19 NIW sites and 5 PPP, however as W3315P Forked Bridge is solely classified as a WTW due to pH modification, this site may be downgraded in the future to a service reservoir if this equipment is decommissioned.

The guidance now requires that the PPP sites are solely assessed in this table.

The calculations were carried using the following data criteria:

- Only scheduled audit final water samples lifted to meet Water Supply regulatory requirements during the calendar year were used and using accredited laboratory analyses rather than onsite analyses.
- Only those WTWs which had more than 11 months' worth of data or had temporary out of service gaps were included. This led to no PPP sites being excluded.

2022 PPP WTW Included in calculations

WTW Code	WTW Name	Turbidity 95 %ile	95 %ile >= 0.5	No of Samples >= 0.5 NTU
W1301P	Moyola PPP	0.210	0	2
W1701P	Ballinrees PPP	0.220	0	1
W2308P	Castor Bay PPP	0.240	0	1
W3301P	Dunore Point PPP	0.200	0	0
W3315P	Forked Bridge PPP	0.230	0	1

Line 25 – Source type

This data had changed in AIR13 to reflect the NI Water opinion that Ballinree's WTW should define three sources i.e. Ballinree's IR, Altikeeragh IR and an intake from the River Bann. All other WTW defined Sources remain unchanged from AIR15. The changes have been reflected in Table 12.

Line 26 – Treatment type

No change to the data since AIR22.

Line 27 – Average pumping head

The APH for 'Alpha Total' and 'Water Services Total' has complied with the requirements of Table 42 Line 27 guidance notes, wherein the Company use the PPP Distribution Input utilised in AIR23. The static heads at the receiving reservoirs remain unchanged each year, therefore the only changeable head input is the dynamic head as a result of the volumes pumped. The dynamic head is confirmed each year during pump efficiency tests across a range of flows to determine the figure to be used for AIR reporting purposes. While the DI for Ballinree's WTW has increased from the AIR22 level [DI for AIR22 was 10,777 MI; DI for AIR23 was 10,805 MI which equates to 29.53 Mld average to supply during AIR22 and 29.60 Mld in AIR23. The AIR23 period was much wetter than AIR22 which would have favoured gravity catchment when required. The River Bann abstractions in AIR22 were 7,768 ML and in AIR23 7,602 ML. The Ballinree's Output B2 average flow has increased from 6.41 MI/d to 6.45 MI/d [pumped flow to Break Pressure Tank at Moy's Service Reservoir – 117m head lift] This increase in B2 flow contributes less to the overall head at site.

Lines 28 – 29 – Sewerage data

No Change from AIR22 data.

Line 30 – population equivalent of total load received

Variation in calculated PE stems from variation in the measured sewage loads delivered to the sites by the Company, being the only variable part of the PE calculation. The Increased BOD loading at Kinnegar WwTW during AIR22 was caused by retained Sludge being processed through the Inlet sampling location which caused an unusual and uncharacteristic increase in estimated PE [Confidence Grade had been adjusted accordingly], NI Water has effectively ceased this practice during the AIR 23 period and BOD loading has returned to a more standardised loading regime. Further commentary is provided under Table 17d.

Line 31 - Load received by STW's

Variation in calculated load stems from variation in the measured sewage loads delivered to the sites through the Company's sewer network. Commentary in Line 30 is also applicable for this line in relation to Kinnegar WwTW. Further commentary at Table 17d.

Lines 32 – 36 - Consents

There have been no material changes to the Water Order Consents.

Line 37 - Classification of treatment works

No change to the treatment Facility classifications since AIR22.

Line 38 - Size band of sewage treatment works

No change since AIR22. Richhill WwTW remains classified as a size band 4 works in accordance with the criteria.

Line 39 - Total sludge imported from NI Water

From the 31 March 2010 the Omega Contractor has assumed responsibility for disposal of all NI Water sludges. The total Sludge imported from NI Water operated WWTW is recorded as 29.883 TTDS for the AIR23 period (last year the figure was 30.645 TTDS). The Kinnegar WwTW input is not included in this figure. The difference of 0.762 TTDS is mainly related to the reductions of NI Water Sludge Cake, Duncrue Liquid Imports and Ballynacor Cake deliveries.

Line 39a - Total sludge imported from other PPP Facilities

This is a new line, originally included in AIR22. Sludges from Armagh and Richhill are routinely delivered to Ballynacor WwTW to be converted into Sludge Cake prior to Incineration or final disposal. It aims to capture unusual use by other sites.

Lines 40 - Sludge produced by the PPP Facility

Whilst the total sludge production recorded against each PPP contract and PPP as a whole is reasonably consistent with last year's records, apart from Kinnegar WwTW, the records for each of the individual Omega sites are different from those recorded in AIR22. The reporter also requested that an estimate of the re-cycled solids from the Incinerator be produced, this has equated to 1.035 tds [very little accuracy involved with this assumption/calculation] and was returned via Duncrue WwTW for further processing. [See Table 15 Line 17 Commentary].

PPP Production	AIR23	AIR22	AIR21	AIR20	AIR19	AIR18	AIR17	AIR16	AIR15	AIR14	AIR13	AIR12	AIR11
Armagh WWTW	0.486	0.529	0.537	0.506	0.486	0.534	0.605	0.535	0.579	0.547	0.535	0.570	0.759
Richhill WWTW	0.074	0.076	0.070	0.066	0.067	0.068	0.071	0.071	0.063	0.071	0.065	0.066	0.213
Ballynacor WWTW	2.812	2.687	2.398	2.607	2.307	1.882	1.739	1.564	2.269	2.007	2.069	3.330	2.468
Ballyrickard WWTW	1.141	1.221	1.107	1.140	1.150	1.246	1.293	1.064	1.337	1.126	1.158	1.225	1.627
NDA WWTW	1.577	1.513	1.661	1.687	1.514	1.629	1.056	1.818	1.633	1.920	1.628	1.559	1.753
Kinnegar WWTW	0.552	0.275	0.580	0.699	0.805	0.331	0.302	0.501	0.668	0.643	0.726	0.823	0.792
Omega Screenings/Grit	0.181	0.162	0.156	0.141	0.220	0.233	0.206	0.083	0.083	0.088	0.106		
Kinnegar Screenings/Grit	0.023	0.032	0.029	0.030	0.033	0.035	0.058	0.049	0.057	0.047	0.022		
Totals	6.846	6.495	6.538	6.876	6.582	5.958	5.930	5.685	6.689	6.449	6.309	7.573	7.612

The variations are tabulated below and on next page;

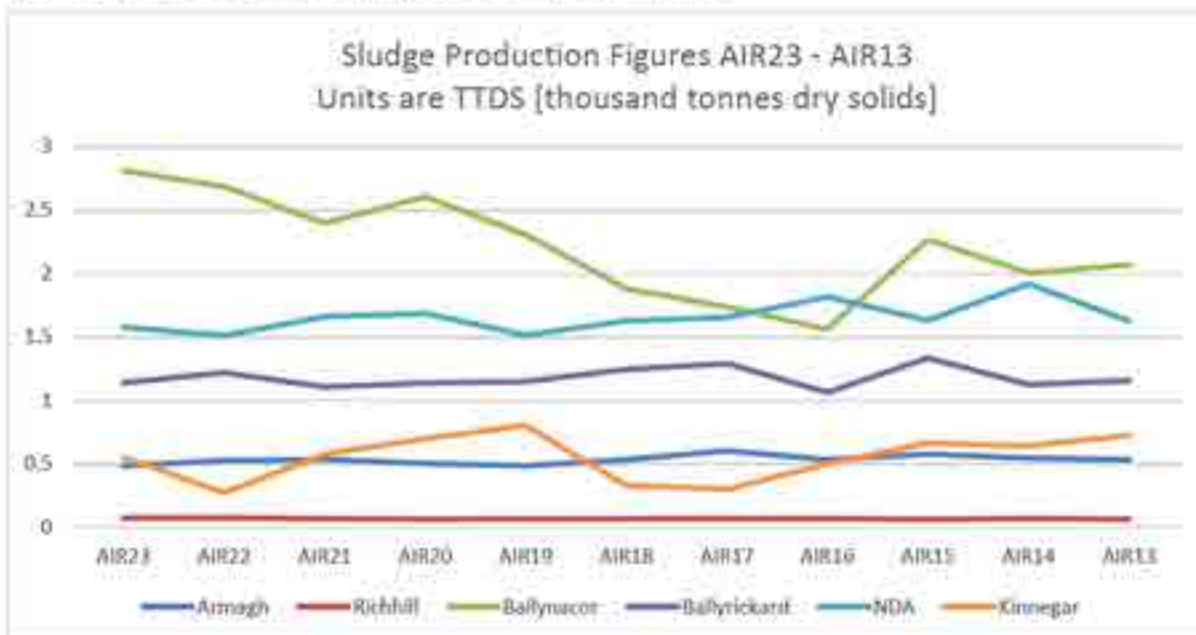
The changes in sludge production [shown below in graphical form below] records data for Omega reflect a probable combination of:

- (i) Cumulative tolerances in the representative nature of dry solids sampling and flowmeter accuracy (particularly on smaller sites)
- (ii) a mix of improved methodologies and record keeping systems for liquid and cake movements (as demanded by the Omega contract payment processes) implemented by end of AIR11, and
- (iii) the loads delivered to the PPP contractor from the NI Water sewer network, outside the PPP contractor's control,
- (iv) The timing of data capture, where prolonged dry periods can have a fluctuating effect from year to year on absolute values, and
- (v) Operational difficulties experienced on individual sites.
- (vi)

One notable exception to the trend is Ballynacor WwTW, which presents a clear upward trend displaying an increase from the previous year. Given the treatment processes have not changed in the same overall period and effluent compliance has been maintained, it is deduced that the overall loading on the WwTW increased from within the catchment and/or from tankered imports and had recently shown signs of recovery. This is supported by the data behind Line 2 (Load Receiving Secondary Treatment). The potential effects of the Covid-19 pandemic on trade in this catchment are possibly included here.

Kinnegar WwTW has reversed the trend seen last year when there was a downward trend caused by a series of mechanical failures in items of plant associated with Sludge Production. Kinnegar WwTW has now demonstrated a more standard Sludge Production and it is hoped that the clearance of Sludge stored within the Storm Tanks will commence soon.

Refer to Table 15 Commentary for a fuller explanation.



Line 41 - Sludge exported to Duncrue Incinerator

Variances from AIR22 are accounted for in Line 40 commentary above.

Line 42 - Sludge exported to other PPP facilities

This line had previously not been completed by NI Water, whereas this year [AIR23] this line has been completed to capture the transfer of Sludge from Armagh WwTW, Richhill WwTW,

NDA and Ballyrickard WwTW's to Ballynacor Sludge Treatment centre, which is now included for the return of the Ballynacor WwTW.

Line 43 - Sludge exported to NI Water

No change from AIR22

Lines 44 - Sludge disposed of from site to - Farmland Untreated

Nil disposal arising from the Contractor's choice of alternative compliant disposal routes.

Lines 45 - Sludge disposed of from site to - Farmland Conventional

Nil disposal, arising from the Contractor's choice of alternative compliant disposal routes.

Lines 46 - Sludge disposed of from site to - Farmland Advanced

A full year service resulted in 2.227 TTDS arising from the Contractor's choice of alternative compliant disposal routes. This is at variance from the 0.931 TTDS report in AIR22 and is at the PPP contractor's discretion based on demand and availability of services at Duncrue St Sludge Facility.

Lines 47 - Sludge disposed of from site to - Incineration

A full year service resulted in 34.297 T TDS being incinerated as the contractor's preferred method of disposal, this being a lesser amount than reported in AIR22 [36.015 TTDS] due to an overall reduction in the total sludge presented for disposal and changes to the tonnage sent for alternative disposal by the PPP Contractor.

Lines 48 - Sludge disposed of from site to - Landfill

A full year service resulted in 0.204 TTDS [0.181 TTDS Omega and 0.023 TTDS Kinnegar] arising from the Contractor's choice of alternative compliant disposal routes. The value represents only PPP Contractors sludges arising from grit and/or screenings removed directly from the sites to land fill, which is larger than that 0.194 TTDS reported in AIR22.

Lines 49 - Sludge disposed of from site to - Composted

A full year service resulted in 0.000 TTDS arising from the Contractor's choice of alternative compliant disposal. AIR22 reported a disposal of 0.000 TTDS.

Lines 50 - Sludge disposed of from site to - Land Reclamation

A full year service resulted in 0.000 TTDS arising from the Contractor's choice of alternative compliant disposal routes. AIR22 reported a disposal of 0.000 TTDS.

Lines 51 - Sludge disposed of from site to - Other (Forestry)

A full year service resulted in 0.000 TTDS arising from the Contractor's choice of alternative compliant disposal routes. AIR22 reported a disposal of 0.055 TTDS.

Lines 52 - Sludge disposed of from site to – Total

After a consultation meeting that had been arranged with the Regulator [during April 2022] in relation to a recommendation from the Reporter, NI Water PPP now understand the intent of this line and has filled it in in compliance with the regulator's recommendations.

NORTHERN IRELAND WATER LIMITED - ANNUAL INFORMATION RETURN

ANNUAL INFORMATION RETURN- TABLE 43 PPP REPORTING

PPP REPORTING - OPERATIONAL COSTS

DESCRIPTION	UNITS	DP	Corresponding Report	SCHEME																					TOTAL	TOTAL	TOTAL	TOTAL	TOTAL																
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21																					
A PROJECT DESCRIPTION																																													
1	PPP Concession		na	Alpha	Alpha	Alpha	Alpha	Alpha	Alpha	Alpha	Kinnegar	Omega	Omega	Omega	Omega	Omega	Omega	Omega	Alpha	Kinnegar	Omega	Water Service	Sewerage Service																						
2	Service Area		na	WT	WT	WT	WT	WD	WD	WWT	WWT	WWT	WWT	WWT	WWT	WWS	WWS	WWS	Alli	Alli	Alli	Alli																							
3	Name of works		na	Balinreel	Castor Bay	Dunore Point	Moyola	DBFO LM	Ballymoney LM	Lisavady LM	Kinnegar	Richhill	Armagh	Ballynacor Craigavon	North Down	Ballyricard	Ballynacor Laggonee	Ballynacor	Dunrue	Total	Total	Total	Total																						
B PPP INFORMATION																																													
4	Payment to Concessionaire	€m	3	Table 42 Line 12	4.161	7.717	8.402	3.065	0.824	0.675	0.818											24.940	24.940																						
5	Payment by Concessionaire to Operating Company	€m	3		1.561	3.018	3.293	1.005	0.020	0.000	0.000											8.874	8.874																						
C DIRECT COSTS TO NI WATER																																													
6	Power	€m	3		2.257	6.690	5.631	1.155	0.000	0.000	0.000	0.000	0.120	0.344	2.021	2.792	0.663	0.000	0.304	3.443	15.728	0.000	9.687	15.728	9.687																				
7	Other direct costs	€m	3		0.053	0.010	0.010	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000																				
8	Total direct costs	€m	3		2.320	6.700	5.641	1.160	0.000	0.000	0.000	0.120	0.344	2.021	2.792	0.663	0.000	0.304	3.443	15.821	0.000	9.687	15.821	9.687																					
9	General and support expenditure	€m	3		0.025	0.025	0.025	0.025	0.025	0.025	0.064	0.038	0.038	0.038	0.039	0.038	0.000	0.038	0.039	0.175	0.064	0.268	0.175	0.333																					
10	Total functional expenditure	€m	3		2.345	6.725	5.666	1.185	0.025	0.025	0.064	0.158	0.382	2.060	2.831	0.701	0.000	0.342	3.482	15.996	0.064	9.956	15.996	10.020																					
D OPERATING EXPENDITURE - NI WATER																																													
11	Scientific services	€m	3		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.022	0.002	0.005	0.012	0.005	0.007	0.000	0.000	0.067	0.000	0.022	0.098	0.000	0.120																				
12	Rates	€m	3		0.834	3.243	3.333	0.430	0.000	0.000	0.000	0.222	0.025	0.144	0.468	0.157	0.124	0.000	0.122	0.175	7.840	0.222	1.215	7.840	1.437																				
13	Estimated terminal pumping costs	€m	3									0.000	0.000	0.000	0.364	0.697	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.051	1.051																				
14	Estimated sludge costs	€m	3									0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.454	11.128	0.000	11.582		11.582																					
E TOTAL PPP OPERATING EXPENDITURE																																													
15	Total PPP operating expenditure	€m	3	Sum 5, 10, 11 and 14	4.740	12.986	12.289	2.620	0.025	0.025	0.025											32.710	32.710																						

Table 43 - PPP Reporting – Operational Costs

Preface:

The Company highlights that on the 19 November 2017 a newly formed hold company subsidiary, NIW Clear Ltd, acquired sole ownership of both the Alpha PPP Contractor (Dalriada Water Ltd) and the Alpha PPP Operating Company (Kelda Water Services Alpha Ltd). These entities were acquired through a competitive bid process conducted by the previous owners, Kelda Water Services Ltd, which commenced in December 2016, following Kelda's announced sale of all their UK PPP/PFI water and energy commitments in September 2016. Post-acquisition, the contractual arrangements between the parties, including the senior lenders, has remained in place. There are no plans to collapse the Alpha PPP contract.

The reporting arrangements in Table 43 below remain unaffected by the acquisition and subsequent continuation of the existing commercial arrangements."

Note: As the atypical expenditure, efficiencies and performance deductions (Omega) were not divisible by site the cross tot on line 4 for Alpha and Omega will not agree – the total included in the total column is correct for the Payments to the Concessionaire.

Line 4 – Payment to concessionaire

The figures on this line are taken directly from Line 12 of Table 42 and any significant changes from the previous year have been commented on in the Table 42 commentary.

Alpha

The data is derived from the Contractors monthly invoice and can be split on a site-by-site basis and in each case represents the sum of the Unitary Charge payments (Capacity + Variable – Deductions) agreed with the Contractor. It also includes atypical amounts as follows:

	£m
Quality Monitoring Change credit	-0.552
EIB Step-down	-0.076
Refund in respect of reorganisation costs	-0.094
Total	-0.722

Kinnegar

The data is provided as an aggregate of the monthly invoiced amounts by the Contractor to the Company. It includes atypical amounts as follows:

	£m
CSP monies released	
Total	

Omega

The data is provided as an aggregate of the monthly invoiced amounts by the Contractor to the Company in respect of the Services. It includes the disputed amounts where the Contractor has not recognised the Performance Deductions made by the Authority and has not provided a credit note to the original invoice. During the reporting year performance deductions of [REDACTED] were recognised by the contractor. In addition this line includes atypical amounts as follows:

	£m
Supplemental 4 agreement	██████████
Change in calibration frequency	██████████
Omega Settlement Accounting	██████████
Belfast WWTW Indigenous Sludge Shortfall Liability - release	██████████
Other	██████████
Total	██████████

Line 5 - Payment by concessionaire to operating company

Alpha

This figure is equal to the figure quoted in Line 22a of Table 21. This figure will vary from year to year depending upon volumes of water dispatched, changes in the volumetric charge, deductions incurred and indexation, all of which flow from Authority through the Contractor to Operating Company.

Omega

This figure is equal to the figure quoted within Line 21a of Table 22. This figure will vary from year to year depending upon volumes of wastewater delivered, change in sludge volumes delivered for disposal, deductions incurred and indexation. The charge for Sludge Treatment has increased during AIR23 ██████████ compared with AIR22 ██████████ and this relates to the increase in costs. Albeit the Sludge processed has been largely comparable [AIR23 – 36.7 TTDS; AIR22 – 37.1 TTDS]. However, the payments from Concessionaire to Operating Company are commercial sub-contracting arrangements upon which the Company can only speculate.

Kinnegar

This figure is equal to the figure quoted within Line 21a of Table 22. This figure will vary from year to year depending upon volumes of wastewater delivered, change in load delivered, deductions incurred and indexation, all of which flow from Authority through the Contractor to Operating Company.

Line 6 - Power

Power costs reported on this line reflect a facility breakdown of the power costs included in Tables 21 and 22. This is taken directly from MPRN references and location codes in the Oracle system. In respect of the Kinnegar Concession, the power costs are paid by the operating company from the monthly payment from the Concessionaire.

Line 7 - Other direct costs

This line includes the cost of abstraction licences at each of the PPP Alpha sites. There are no other direct costs for Kinnegar or Omega.

Line 9 - General and support expenditure

General and support costs have been calculated using costs attributable to the P101 cost centre. These costs have been allocated by project on the basis of percentage time spent by each staff member working on each project and in the case of consultancy based on actual invoices received. Costs were then allocated straight line across the number of sites included within each concession. No work giving rise to a general and support expenditure

allocation was carried out on the Ballynacor Lagoons site during the year hence no costs have been attributed to this site.

Line 11 - Scientific services

Scientific services costs have been allocated to PPP sites on the basis of the percentage of samples attributable to each PPP site, an allocation of staff costs based on actual hours and operational contractor costs on the basis of estimated cost per site visit.

Line 12 - Rates**Alpha**

Rates at water supply sites are based on water volumes. In order to allocate a proportion of the rates bill to the Alpha sites the volume of water supplied at each PPP site was taken as a percentage of the total NIW water supplied and this figure was multiplied by the total NIW rates cost.

Kinnegar

Kinnegar rates charge was taken directly from the rates bill.

Omega

The rates figure for each of the Omega sites was taken directly from rates bills. The bill for the Duncrue site was allocated between PPP and NIW in line with the total area of the site occupied by PPP, which has estimated as 15% of the Duncrue site. The Ballynacor site rates have been split on a 65:35 wastewater to sludge split.

Line 13 - Estimated terminal pumping costs

This line reflects the power costs associated with Seagoe, Bullay's Hill (Ballynacor facility) and Briggs Rock, Millisle and Donaghadee (North Down Facility). These were derived from the Oracle system using the location code for each site.

Line 14 - Sludge costs

This line reflects the costs associated with the PPP sludge facilities at Duncrue Street and Ballynacor. It totals the costs included at line 5, 10, 11 and 12.

NORTHERN IRELAND WATER LIMITED - ANNUAL INFORMATION RETURN

ANNUAL INFORMATION RETURN - TABLE 45 KEY OUTPUTS

ENERGY CONSUMPTION AND GREENHOUSE GAS ACCOUNTING

DESCRIPTION	UNITS	DP	1		2		3		
			NIW	CG	PPP	CG	NIW Total	CG	
A ELECTRICITY CONSUMPTION									
1	Grid electricity purchased (excluding renewable energy)	MW.hr	0	96,541	A2	16,443	A2	112,984	A2
2	Grid electricity purchased - renewable energy	MW.hr	0	160,222	A2	21,609	A2	181,831	A2
3	Non-renewable electricity generated and used	MW.hr	0	0	A2	0	A2	0	A2
4	Renewable electricity generated and used	MW.hr	0	5,860	A2	3,168	A2	9,028	A2
5	Total electricity consumption	MW.hr	0	262,623	A2	41,220	A2	303,843	A2
6	Non-renewable electricity generated and exported to the grid	MW.hr	0	0	A2	0	A2	0	A2
7	Renewable electricity generated and exported to the grid	MW.hr	0	1,737	A2	0	A2	1,737	A2
8	Total renewable energy generated	MW.hr	0	7,597	A2	3,168	A2	10,765	A2
B GROSS ANNUAL OPERATIONAL GHG EMISSIONS									
B.1 Scope 1 Emissions									
9	Direct emissions from burning fossil fuels (including natural gas CHP generation on site)	t.CO ₂ e	0	1,912	A2	2,655	A2	4,567	A2
10	Process and fugitive emissions	t.CO ₂ e	0	7,186	A2	14,540	C3	21,726	C3
11	Transport: company owned or leased vehicles	t.CO ₂ e	0	2,418	B2	90	B2	2,508	B2
B.2 Scope 2 Emissions									
12	Total grid energy used (including CHP electricity purchased).	t.CO ₂ e	0	49,653	A2	7,359	A2	57,012	A2
B.3 Scope 3 Emissions									
13	Business travel on public transport and private vehicles used for company business	t.CO ₂ e	2	471.81	B2			471.81	B2
14	Outsourced activities (if not included in Scope 1 or 2) Energy and other	t.CO ₂ e	2	4,542	A4	2,349	C5	6,891	B2
15	Not used								
16	Not used								
17	Gross operational emissions	t.CO ₂ e	0	67,988	B3	27,690	B3	95,677	B3
C Net annual operational emissions									
18	Exported renewables (generated on-site and exported)	t.CO ₂ e	2	-281.36	A2	0.00	A2	-281.36	B2
19	Green tariff electricity purchased	t.CO ₂ e	2	-25,679.03	A2	-4,178.89	A2	-29,857.92	A2
20	Net operational emissions	t.CO ₂ e	0	42,027	B3	23,511	B3	65,538	B3
D ANNUAL OPERATIONAL GHG INTENSITY RATIO VALUES									
21	Operational GHG per Ml of treated water	t.CO ₂ e/Ml	3	0.190	A4			0.190	A4
22	Operational GHG per Ml of sewage treated (flow to full treatment)	t.CO ₂ e/Ml	3	0.521	B4	0.461	A4	0.498	A4
23	Operational GHG per Ml of sewage treated (based on water distribution input)	t.CO ₂ e/Ml	3	0.351	B4	0.310	B4	0.335	B4
E RENEWABLE INCENTIVES									
24	Revenue from renewable energy sales and incentives	£000	3	740.857	A2	0.000	A2	740.857	A2

Table 45 - Energy Consumption and Greenhouse Gas Accounting

Table 45 contains data relevant to the Company's energy consumption and greenhouse gas (CHG) accounting as requested for the AIR22 return.

Table 45 has been populated in line with guidance provided by NIAUR and contains data sets both internal and external as required and as set out within the sections detailed below.

Table 45 reports emissions generated by the Company (including ALPHA) and outsourced PPP (Omega and Kinnegar) concessions working for the appointed business in carrying out any part of its regulated activities.

Table 45 reports emissions generated by the Company (including ALPHA) and by outsourced PPP (Omega & Kinnegar) concessions in separate columns and also calculates a Company total.

Reporting Outputs

Table 45 has been populated in line with the reporting requirements outlined in the methodology statement for this table and this is detailed further below.

Data has been provided in Table 45 for energy consumption, gross and net tonnes CO₂e of operational emissions.

The total fugitive and process emission reported is c21k tonnes, how this has been established is by the creation of two independent CAW 17 workbooks. One representing NIW (including ALPHA) and PPP (Omega and Kinnegar). The values for process and fugitive emissions have then been added together to generate a NIW Total figure.

GH intensity factors have been reported in Table 45 for NIW, PPP and Total using figures inputted from other tables submitted in the AIR. A pro rata split of waste water has been applied to calculate the GHG associated with each section for waste water NIW (61.24%) and PPP (38.78%).

The revenue from the sale of renewable electricity and other incentives is reported as previous years.

Lines 1 – 8 Electricity Consumption

This section provides data relevant to the total electricity consumption within NIW and PPP concessions, a breakdown by renewable and non-renewable energy sources and data related to company generated renewable electricity.

The Company has purchased and self-generated circa 63.7% of its total electricity consumption from renewable sources within the reporting period.

Self-generated renewable electricity has been via Hydro, Solar schemes across several sites and a steam turbine at the Incinerator. The total outputs are estimated in Table 1.

Table 1

Site	kWh Generated	kWh Exported	kWh Consumed on site
Hydro – Silent Valley (REGO)	758,017.48	758,017.48	0
Hydro – Oaklands (Non-REGO)	269,735.51	269,735.51	0
Hydro – Fofanny (Non-REGO)	295,577.0	0	295,577.0
Steam (Non-REGO)	3,168,448.0	0	3,168,448.0
Dunore Solar Farm (REGO)	6,194,539.40	696,933.80	5,497,545.60
63 Solar PV Installations (Non-REGO)	1,106,807.80	12,372.34	1,094,435.44

Further investigatory work is ongoing to enable installation of hydro and wind turbine systems at other sites. Installation of some of these systems may occur over PC21.

The level of self-generation is further complemented by procurement of renewable electricity from the Single Electricity Market (SEM). NIW has built into the new metered electricity contract that approximately >60% of consumption would be electricity from a renewable source and covered by Renewable Energy Guarantees of Origin (REGO). This electricity contract is due to become live October 2023.

Lines 9 – 17 Gross Annual Operational GHG Emissions (Lines 15 and 16 not used)

This section provides gross annual operating GHG emissions in tonnes CO₂e within NIW and PPP concessions, broken down as follows:

- direct emissions from burning fossil fuels;
- process and fugitive emissions (Refer to earlier commentary relating to placeholder values) and
- transport emissions.

Emissions have been reported under Scope 1, 2 and 3 headings and these are detailed further below.

Scope 1 (lines 9-11) report on all emissions emitted directly from the Company's appointed activities. This includes direct emissions from burning of fossil fuels, direct process emissions and transport owned or leased by the Company.

Scope 2 (line 12) reports on all emissions indirectly emitted as a result of electricity usage.

Scope 3 (lines 13 - 15) reports on all other indirect emissions not included in scope 2. Scope 3 emissions will be those from business travel on public transport and private vehicle usage for company business (line 13). Grey fleet emissions are all quantified as scope 3 and initial provision has been made this year for emissions arising from air transport. Line 14 has been inserted relating to 'Grid electricity purchased - transmission and distribution'. Line 15 relates to 'Emissions from sludge and process waste disposal' this has been entered from information generated in the DEFRA report table within the CAW under the generated additional scope 3 emissions not included in company totals. NIW disposal of water and wastewater treatment to landfill emissions have been included. PPP additional Scope 3 emissions not included in company totals for the generated application of sludge products to others' land and disposal of wastewater treatment to landfill emissions have been included.

Lines 18 – 20 Net annual operation Emissions

This section reports on net annual operational emissions derived from renewable energy generated onsite and then exported (line 18) and green energy purchased (line 19). These reductions have been subtracted from the gross emissions value (line 17) to provide a net operational emissions figure in (line 20).

Lines 21 – 23 Annual operating GHG Intensity Ratio Values

This section is intended to provide annual operating GHG intensity ratios in tonnes CO₂e per mega litre for the provision of water and sewerage service using water and waste flows as a denominator.

Two intensity ratios will ultimately be provided for sewerage service, one using table 14 data as a denominator and one using additional road drainage in-flow. Details of intensity ratios and confidence grades are included in Table 2.

Table 2

Description	Unit	NIW	PPP	TOTAL	CG
Annual operational emissions intensity ratio per Ml of treated water	tonnes CO ₂ e/ ML	0.190	N/A*	0.190	C3
Annual operational emissions intensity ratio per Ml of treated sewage (FFT)	tonnes CO ₂ e/ ML	0.521	0.461	0.498	C3
Annual operational emissions intensity ratio per Ml of treated sewage (DI Input)	tonnes CO ₂ e/ ML	0.351	0.310	0.335	C3

*NB: N/A has been inserted under PPP as ALPHA has been defined within NIW direct scope 1&2 emissions.

Line 24 Renewable Incentives

This section provides data relevant to Company income from renewable electricity sales and associated incentives such as ROC revenue.

Confidence Grades

Confidence grades have been assigned for each line of data and these are based on the criteria set out in the Introduction to the AIR23 Reporting Requirements and guidance within the UKWIR-CAW 17.0.

Processing rules and Emissions Conversion Factors:

The Company has provided output data within Table 45 as calculated using the UKWIR-CAW 17.0 for GHG emissions associated with the provision of water, wastewater, sludge disposal, administrative function and transport in its AIR23 return.

Data sources for the AIR23 return have been generated from supplier's monthly consumption figures associated with the use of electricity, gas and other fuels where data is attainable. Estimations have only been used where there is deemed material impact and enough historical information is available with which to estimate quantities.

All energy conversions have been derived from the CAW 17.0 and are aligned to the Defra/BEIS guidelines using the relevant emissions factor for kg of CO₂ per measured unit of energy. The calculations are carried out within locked cells in the CAW 17.0.

Gross operational emissions reported in Table 45 are the Company's total carbon emissions resulting from operational activities.

Net operational emissions reported in Table 45 are a calculation of gross operational emissions taking into account emissions reductions for on-site renewable energy that is exported and renewable energy that has been purchased.

The below intensity figures are under review for the reasons preciously cited.

- The t.CO₂e/ML GHG intensity output figure for treated water emissions will (in due course) be derived from and include all carbon emissions from the abstraction, treatment and distribution of water, associated administrative and transport emissions divided by the volume of treated water; and
- The t.CO₂e/ML GHG intensity output figure for treated wastewater will (In due course) be derived from all carbon emissions from wastewater pumping, waste water treatment, sludge treatment and disposal, and associated administrative and transport emissions divided by the volume of waste water treated.

The GHG intensity figures for treated water and wastewater for the calculations above will be derived from the volumes of water and wastewater as reported in tables 10 and 14 of the Company's AIR23 data.

Assumptions

The Company has assumed that the boundary for data collection is any activity associated with the operation of the appointed business. This will include all areas where the company has direct management responsibility such as the PPP concessions.

Additional Commentary

The Company can provide details of planned future work in carbon accounting, carbon management, mitigation and adaptation. This development is linked to development of a Climate Change Strategy which is planned for publication in 2022/23

Omissions

The following areas have been omitted from the AIR23 submission due to inability to source or lack of access to data.

- Supply chain, embedded and 'short cycle' emissions or those from non-appointed business activities have not been included in the return;
- Outsourced activities from call centres and maintenance contractors; and
- The full amount of carbon stored on land.

The GHG emissions associated with the omissions being assessed over 2023/24 and an update will be provided in AIR24.

The GHG omissions above will be addressed in year to enable a fuller return for AIR24 reporting only if deemed in further discussion to have a material impact on the emissions level.

Green Purchased Electricity Adjustment

Green Tariffs are electricity tariffs marketed as having environmental credentials. Defra/BEIS recognise as green those tariffs which comply with the 'Good Quality' Criteria specified on pages 51 and 52 of the 'Defra/DECC's Guidance on How to Measure and Report your GHG Emissions' published in Sept 2009.

The Company has evidence verified by Capture Carbon to support the 160.2 million kWh recorded in CAW 17.0 sourced from 100% renewable electricity generation for the period 01.04.22 to 31.03.23. The renewable electricity generation is verified by Renewable Energy Guarantees of Origin (REGOs) issued by the UK Office of Gas and Electricity Markets (Ofgem).

The additional (and approximate) increase of 30 million kWh additional green source energy provides the bulk of the apparent reduction in GHG intensity (Although reductions in overall grid carbon intensity are contributory)

Table 4 demonstrates the change in Annual operational GHG intensity ratio values as supported by REGO accredited green purchased electricity.

Table 3

Description	Unit	AIR17	AIR18	AIR19	AIR20	AIR21	AIR22	AIR23
Gross Operational Emissions	tonnes CO ₂ e	160,447	143,491	120,442	112,130	101,957	100,882	95,677
Green Tariff electricity purchased reduction	tonnes CO ₂ e	-41,296	-36,396	-29,651	-31,875	-29,095	31,838	-25,960
Net Operational Emissions	tonnes CO ₂ e	118,778	106,816	90,364	79,328	72,882	68,575	65,537

Table 4

Description	Unit	AIR17	AIR18	AIR19	AIR20	AIR21	AIR 2022	AIR 2023
Annual operational emissions intensity ratio per Ml of treated water	tonnes CO ₂ e/ ML	0.143	0.176	0.139	0.118	0.175	0.197*	0.190*
Annual operational emissions intensity ratio per Ml of treated sewage (FFT)	tonnes CO ₂ e/ ML	0.574	0.611	0.433	0.386	0.501	0.509*	0.498*
Annual operational emissions intensity ratio per Ml of treated sewage (DI Input)	tonnes CO ₂ e/ ML	0.376	0.379	0.287	0.251	0.339	0.346*	0.335*

*NB: The same methodology has been applied the same as previous years reporting in AIR22.

Data Quality Assurance Check – Table 45

On completion of the CAW, the applicable values from the homepage are populated in a data checklist. The values in the checklist are populated in the related cells of Table 45. A comparison on the two files is taken to ensure consistency.

The values populated in Table 45 being presented to the regulator are given a final data quality sign off by line management.

Green House Gas (GHG) Reduction

NIW has made strides to reduce GHG emissions from AIR17 reporting year to AIR23 reporting year by increasing its self-supply installations particularly in Solar PV. Also with the inclusion of a Company driven process optimisation project with the main objective to reduce consumption within Wastewater Treatment sites. The historic development of Integrated Constructed Wetlands (ICW) to replace inefficient Wastewater Treatment works and infant forestation projects will continue to mitigate NIW carbon emissions.

The Company has also been able to provide evidence from the 2017/18 reporting year, onward of increasing green accredited power purchase and renewable generation.

Taking all these factors in consideration alongside a reduction in the emission factors for 2022/23 against the emission factors for 2021/2022 demonstrate an overall reduction in gross and net GHG emissions.

NORTHERN IRELAND WATER LIMITED - ANNUAL INFORMATION RETURN

ANNUAL INFORMATION RETURN - TABLE 46 SERVICEABILITY

SERVICEABILITY RETURN

DESCRIPTION	UNITS	DP	REPORTING YEAR																									
			2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27			
A WATER INFRASTRUCTURE																												
1	Water population	000	2	1,710,068	1,735,599	1,732,851	1,748,533	1,770,131	1,780,198	1,798,488	1,809,832	1,819,039	1,827,731	1,840,541	1,850,231	1,861,588	1,869,119	1,873,141	1,886,301	1,896,833	1,901,289	1,912,031						
2	Total connected properties at year end	000	1	798,191	798,191	794,112	800,112	804,112	798,112	805,112	810,112	815,112	820,112	825,112	830,112	835,112	840,112	845,112	850,112	855,112	860,112	865,112						
3	Total length of mains	km	2	27,114.30	27,114.30	27,114.30	27,114.30	27,114.30	27,114.30	27,114.30	27,114.30	27,114.30	27,114.30	27,114.30	27,114.30	27,114.30	27,114.30	27,114.30	27,114.30	27,114.30	27,114.30							
4	Number of mains bursts (incl Active leakage)	nr	0	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054	5,054							
5	Mains bursts per 1000km	nr	1	18.27	18.27	18.27	18.27	18.27	18.27	18.27	18.27	18.27	18.27	18.27	18.27	18.27	18.27	18.27	18.27	18.27	18.27							
6	Interruptions to supply greater than 3 hours resulting from equipment failure	nr	0	35,700	35,700	35,700	35,700	35,700	35,700	35,700	35,700	35,700	35,700	35,700	35,700	35,700	35,700	35,700	35,700	35,700	35,700							
7	DGI Properties affected by interruptions >12 hrs (unplanned & unannounced)	nr	0	1,876	1,876	1,876	1,876	1,876	1,876	1,876	1,876	1,876	1,876	1,876	1,876	1,876	1,876	1,876	1,876	1,876	1,876							
8	DGI Percentage properties affected by interruptions >12 hrs (unplanned & unannounced)	%	2	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22							
9	Number of regulatory samples taken for iron at customer taps	nr	0	1,959	1,959	1,959	1,959	1,959	1,959	1,959	1,959	1,959	1,959	1,959	1,959	1,959	1,959	1,959	1,959	1,959	1,959							
10	Number of regulatory iron samples exceeding the drinking water standard PCV	nr	0	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48							
11	Number of regulatory iron samples exceeding 75% of the drinking water standard PCV	nr	0	168	168	168	168	168	168	168	168	168	168	168	168	168	168	168	168	168	168							
12	Percentage of regulatory iron samples exceeding 75% of the drinking water standard PCV	%	2	8.52	8.52	8.52	8.52	8.52	8.52	8.52	8.52	8.52	8.52	8.52	8.52	8.52	8.52	8.52	8.52	8.52	8.52							
13	Customer contacts (Discounted water)	nr	0	4,688	4,688	4,688	4,688	4,688	4,688	4,688	4,688	4,688	4,688	4,688	4,688	4,688	4,688	4,688	4,688	4,688	4,688							
14	Customer contacts per 1000 population (Discounted water)	Mkt	2	2.74	2.74	2.74	2.74	2.74	2.74	2.74	2.74	2.74	2.74	2.74	2.74	2.74	2.74	2.74	2.74	2.74	2.74							
15	Distribution losses	Mkt	2	141.90	127.78	118.74	111.38	103.48	95.99	88.90	82.21	75.92	70.03	64.54	59.45	54.76	50.47	46.58	43.09	39.90	37.01							
16	Company's overall serviceability assessment for water infrastructure	Text	N/A																									
B WATER NON-INFRASTRUCTURE																												
17	Number of regulatory samples taken for Turbidity at operational WTWs (excluding PPP)	nr	0				5,273	5,273	5,139	4,944	4,810	4,738	4,642	4,523	4,405	4,423	4,584	4,427	4,584	4,427	4,611							
18	Number of regulatory samples taken for Turbidity at operational WTWs which exceed 1.1 NTU (excluding PPP)	nr	0				10	10	14	16	17	11	14	10	8	18	14	12	14	12	12							
19	Number of regulatory samples taken for Turbidity at operational WTWs which exceed 0.1 NTU (excluding PPP)	nr	0	130	158	79	34	14	22	22	23	14	24	21	14	12	14	12	14	12	14							
20	Percentage of regulatory samples taken for Turbidity at operational WTWs which exceed 0.1 NTU (excluding PPP)	%	2	7.57	9.03	4.50	1.90	0.79	0.78	0.91	0.94	0.78	0.82	0.62	0.47	0.62	0.64	0.54	0.62	0.54	0.64							
21	Number of regulatory samples taken for THMs at customer taps	nr	0	1,057	992	704	752	760	764	433	408	392	398	381	388	392	388	388	388	402	402							
22	Number of regulatory THM samples exceeding the drinking water standard PCV	nr	0	398	339	168	149	141	141	71	71	71	71	31	31	31	31	31	31	31	31							
23	Number of regulatory THM samples exceeding 75% of the drinking water standard PCV	nr	0	276	235	141	141	141	71	71	71	71	31	31	31	31	31	31	31	31	31							
24	Percentage of regulatory THM samples exceeding 75% of the drinking water standard PCV	%	2	64.68	46.11	39.71	38.84	37.38	37.27	37.41	37.41	37.41	37.41	37.41	37.41	37.41	37.41	37.41	37.41	37.41	37.41							
25	Number of WTWs issuing from treatment difficulties or ineffective treatment categorised as significant or higher	nr	0				14	21	21	12	24	9	14	22	24	10	12	14	11	14	14							
26	Number of regulatory samples taken at Service Reservoirs for coliform bacteria	nr	0	18,258	18,238	17,914	17,558	17,488	17,428	16,964	16,864	16,718	16,644	16,444	16,444	16,444	16,444	16,444	16,444	16,444	16,444							
27	Number of regulatory samples taken for coliform bacteria at Service Reservoirs exceeding the drinking water standard PCV	nr	0	55	68	68	42	24	24	4	22	7	24	11	24	15	14	14	14	14	14							
28	Percentage of regulatory samples taken for coliform bacteria at Service Reservoirs exceeding the drinking water standard PCV	%	2	0.30	0.37	0.38	0.24	0.14	0.14	0.04	0.12	0.12	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14							
29	Unplanned (reactive) maintenance	%	1																									
30	Company's overall serviceability assessment for water non-infrastructure	Text	N/A																									
C SEWERAGE INFRASTRUCTURE																												
31	Total length of sewers	km	2	13,911.28	14,263.40	14,318.38	14,485.29	14,745.01	14,924.89	15,200.38	15,254.28	15,414.44	15,581.83	15,825.19	15,777.29	15,893.83	16,009.10	16,163.23	16,301.81	16,382.78	16,485.49							
32	Total number of main failures	nr	0				25	25	31	38	44	48	51	51	44	49	49	49	49	49								
33	Total number of gravity sewer collapses	nr	0				1,388	1,228	1,159	1,085	1,004	1,024	1,024	1,024	1,024	1,024	1,024	1,024	1,024	1,024	1,024							
34	Total number of sewer collapses	nr	0				81	1,388	1,011	1,286	1,211	1,122	1,122	1,122	1,122	1,122	1,122	1,122	1,122	1,122	1,122							
35	Sewer collapses per 1000km	nr	1	5.82	9.53	7.06	8.61	8.61	8.61	8.61	7.91	7.21	7.21	7.21	7.21	7.21	7.21	7.21	7.21	7.21								
36	Total number of sewer blockages	nr	0	16,912	16,912	16,912	16,912	16,912	16,912	16,912	16,912	16,912	16,912	16,912	16,912	16,912	16,912	16,912	16,912	16,912	16,912							
37	Sewer blockages per 1000km	nr	1	1,215	1,215	1,215	1,215	1,215	1,215	1,215	1,215	1,215	1,215	1,215	1,215	1,215	1,215	1,215	1,215	1,215	1,215							
38	Number of H ₂ S pollution incidents from sewer network (CSOs, rising mains and fa. sewers)	nr	0				38	34	36	34	34	14	11	11	11	15	12	12	12	12								
39	Number of H ₂ S pollution incidents from sewer network (CSOs, rising mains and fa. sewers)	nr	0				244	221	199	113	141	126	88	102	88	81	72	81	72	81	72							
40	Properties flooded in the year (other causes)	nr	0	58	25	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24							
41	Areas flooded externally in the year (other causes)	nr	0	438	7,889	6,872	1,374	Not reported	3,344	4,376	3,889	3,819	3,889	3,889	3,889	3,889	3,889	3,889	3,889	3,889	3,889							
42	Total number of equipment failures reported	nr	0	11,719	10,989	10,882	11,492	11,474	10,313	10,899	11,240	9,989	9,883	9,883	9,883	9,883	9,883	9,883	9,883	9,883	9,883							
43	Number of pumping station emergency overflows triggered by equipment failure	nr	0				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1							
44	Number of sewer repairs	nr	0				1,015	1,298	1,211	1,122	1,122	1,122	1,122	1,122	1,122	1,122	1,122	1,122	1,122	1,122	1,122							
45	Company's overall serviceability assessment for sewerage infrastructure	Text	N/A																									
D SEWERAGE NON-INFRASTRUCTURE																												
46	% WWTW discharges not compliant with numeric consents	%	1	20.0	18.0	16.0	12.0	11.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0								
47	% of total p.e. served by WWTW not compliant with numeric consents excluding upper 34 failures	%	2	37.00	33.33	23.10	18.50	9.80	8.60	5.08	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80								
48	Number of BOD ₅ SS and Ammonia sample results recorded for compliance reporting at WWTWs with numeric consents	nr	0	11,234	11,235	11,461	1																					

Table 46 – Serviceability**Line 16 - Company's overall serviceability assessment for water infrastructure****Overview**

The number of Burst Mains per 1000 km for AIR 23 is 92.00

The output figure for this serviceability indicator for AIR 23 Line 5, shows that the recent trend has levelled out to just below the UR median line on the graph of 93.4 bursts per 1000km (see below)

The output for this serviceability measure is "Stable".

Due to the transition to the IMS methodology in AIR14 for the output for Line 6 – Interruptions to Supply > 3hrs resulting from Equipment failure, an adjustment to the reference level was implemented to improve accuracy.

Since this new methodology has been embedded, the trend rate is looking stable.

The output assessment is supported by the relevant "Customer Contacts" annual trend shown below which is consistently between the upper and lower reference targets on the graph below

All metrics suggest that the ongoing trends demonstrated above are within their respective upper and lower tolerances or in some cases just below the UR lower limit.

The burst rate, (the Primary Indicator), shows evidence of an ongoing stable burst trend

NIW will continue to monitor the trend for this important primary indicator and also review the other indicator trends below .

The overall Serviceability assessment of the Water Infrastructure Network is "Stable"

Summary Table

Serviceability Indicator	Line	Current Trend in Relation to Control Parameters	Output
No. of Bursts per 1000km	Line 5	<p>The overall trend in PC21 onwards shows a stable trend in burst rates with the trend fluctuating around the UR Median Reference line of 84.56 bursts per 1000km for the last 7 years</p> <p>This assessment suggests that burst rates have dropped significantly since AIR10 with six consecutive previous year-on-year improvements between AIR10 and AIR16 and then levelling out in subsequent years.</p> <p>This Serviceability Indicator is considered as Stable</p>	Stable

Serviceability Indicator	Line	Current Trend in Relation to Control Parameters	Output
Interruptions to Supply > 3hrs resulting from equipment failure	Line 6	<p>Only the AIR 18 and AIR 22 outturns did not conform to an improving trend since the better automated data capture systems were introduced.</p> <p>The conclusion is that NI Water's performance against this measure remains 'Stable' as the AIR 21,22 and 23 figures have reached a point fluctuating around the lower UR Reference line on the graph below</p> <p>This Serviceability Indicator is considered as Stable</p>	Stable
DG3 % of Properties Interrupted supply > 12 hrs	Line 8	<p>The conclusion is that, although the annual outturn for Table 46: Line 8: DG3 Percentage properties affected by interruptions >12 hrs (unplanned & unwarned), continues to be stable,</p> <p>the ongoing perceived improvement of previous years may be more likely to be attributed to the impact of NI Water's ITS Strategy than asset performance.</p> <p>This output is therefore considered to be Stable</p>	Stable
% of iron Samples Exceeding 75% of PCV	Line 12	<p>The AIR 23 figure is calculated from Line 11 divided by Line 9 = $26/2003 = 1.30\%$</p> <p>The current failure rate is relatively low, with the ongoing trend fluctuating between the UR Reference limit and the lower limit (see above) for the last 5 years.</p> <p>This figure is related to a random sampling regime.</p> <p>Taking these factors into account, this therefore indicates that this measure indicates a Stable trend as the random sampling regime can skew the trend slightly from one year to the next.</p>	Stable

Serviceability Indicator	Line	Current Trend in Relation to Control Parameters	Output
Number of Customer Contacts per 1000 population (Discoloured Water)	Line 14	The Population figure utilised here for the AIR21 return is 1,912,090. The output figure is therefore 3741 relevant contacts/1,912,090 = 1.96 This output suggests that this trend is Stable, as the graph remains within the upper and lower limits of the target envelope	Stable
Water Distribution Losses	Line 15	Explanatory factor. See below. The output figure for AIR 23 is 123.79ML/day. This figure is comparable to the output figures since the start of PC15 (See graph)	Explanatory factor
Overall Rating		Final Explanatory Text	Stable

Primary Indicator

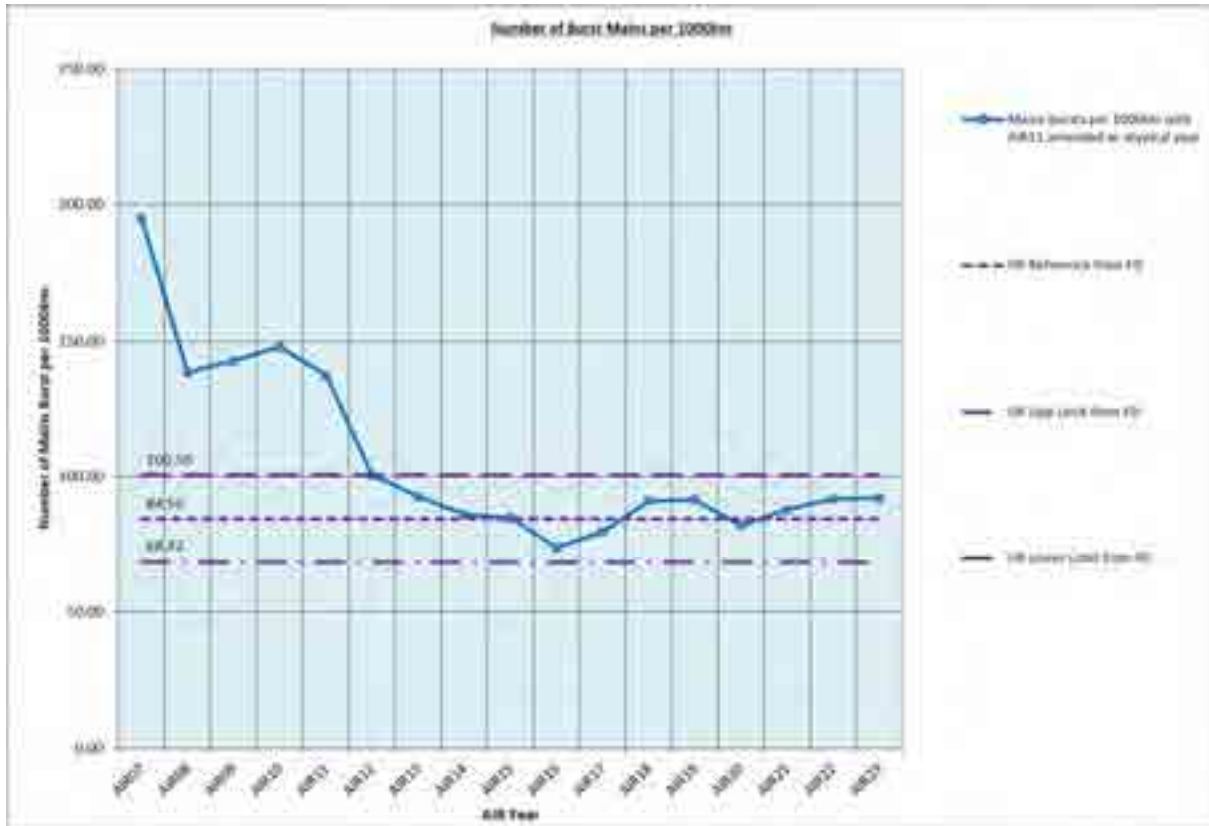
Line 5 – Number of Burst Mains per 1,000km

The number of Burst Mains per 1000 km was 81.88 for AIR20.
 The number of Burst Mains per 1000 km was 87.80 for AIR21
 The number of Burst Mains per 1000 km was 91.80 for AIR22

Total Burst Mains is calculated by dividing the Total length of mains multiplied by 1,000

The number of Burst Mains per 1000km is 92.00 for AIR 23

i.e. $2513 - 17$ (rechargeables) / $27,086.39\text{km} = 0.0924 \times 1,000 = \mathbf{92.00 \text{ bursts per 1000km}}$



AIR 23 TABLE

Burst Numbers Summary Table	AIR19	AIR20	AIR21	AIR22	AIR23	Percentage Changes	
						AIR21 to AIR 22	AIR22 to AIR 23
CSD Networks Water (non-proactive detection)	1451	1186	1268	1353	1371	6.7%	1.3%
CSD Networks Water (proactive detection)	1111	1051	1132	1145	1142	1.1%	-0.3%
Third Party Damage	95	26	29	10	17	-65.5%	70.0%
Total	2467	2211	2371	2488	2496	4.9%	0.3%
Burst Rate per 1000km	91.5	81.9	87.8	91.8	92	4.6%	0.2%

This assessment suggests that burst rates have dropped significantly since AIR10 with six consecutive previous year-on-year improvements between AIR10 and AIR16 and then levelling out in subsequent years. The number of burst mains per 1000km consistently fluctuated around the median UR reference line as seen on the attached graph since AIR 17.

In the two years of PC21 this trend has continued near the median UR reference line, in the trend graph

Annual Fluctuations are to be expected in a distribution network, for example due to prolonged hot cold weather. NI Water will continue to monitor any perceived upward trend

Issues contributing to this Stable trend are that :

- Mains rehabilitation schemes continue to have a positive impact in reducing the no. of defects with older iron mains being replaced
- Pressure Management Schemes in targeted areas include new installations, replacements and relocations of pressure reducing / sustaining valves
- Continuing detail has been paid to the classification of mains repairs as opposed to communication pipe repairs or replacements
- Calm Network procedures are employed by all those who interact with the Network

The number of mains repairs down to proactive leakage detection methods, is up in comparison with the last five years' average figure from AIR 17 onwards.

There is no significant change in the number of repairs attributable to Third Party Damage. In the last 4 years The reasons for this remain unclear and are difficult for NI Water to manage as the figure is dependent on both contractors admitting liability and front line operatives initiating a rechargeables process. NI Water will continue to emphasise the need for this process to be followed by front line operatives when circumstances apply.

Unplanned, Unwarned Interruptions

AIR	DG3 Properties Affected	2020/21	2021/22 (inc. Dunore)	2021/22 (exc. Dunore)	2022/23
Table 2: Line 5	More than 3 hours	24,443	35,321	21,859	15,495

In 2023/24, NI Water will continue to deliver its SMART Network capital programme. The PC21 ITS Strategy Roadmap aligns with NI Water's desire to become more intelligent through the development of an Intelligent Operations Centre (IOC). The plan is to use the SMART Network as a stepping-stone to move from a reactive position to a preventative environment whilst at the same time, developing a greater understanding of assets and reducing interruptions to supply.

This Serviceability Indicator is considered as Stable.

The overall trend from PC15 onwards shows a positive trend towards reduction in bursts within the UR final determination with the outputs consistently stabilising around the median limit on the graph. (See graph above)

This assessment suggests that burst rates have dropped significantly since AIR10 with six consecutive previous year-on-year improvements between AIR10 and AIR16 and then levelling out in subsequent years.

Secondary Indicators

Line 6 – Interruptions to Supply > 3hrs resulting from Equipment failure

This year’s outturn of 15,375 properties affected by an interruption to supply greater than 3 hours resulting from equipment failure is the lowest since regulatory reporting commenced in 2007/08. Previous outturns have been higher for a variety of reasons. Some outturns have been higher because of extreme or atypical events such as freeze/thaws and industrial action. Whereas the AIR22 outturn was higher because of a burst on a pumped trunk main, close to Dunore Water Treatment Works which caused 13,482 properties to experience an unplanned interruption of more than 3 hours. The historical outturns were also affected by an over-reporting issue but the introduction of a detailed review process has resolved this and is resulting in some interruption events being assigned now to lower time bands than they would have in the past.

Some interruptions can now be prevented through a change in working practices and the way in which bursts and other, less common causes of interruption are managed. New initiatives introduced under NI Water’s ITS Strategy are helping to reduce the overall number of interruptions and when an interruption is still inevitable, for example, when bursts occur in single supply zones with rezoning limitations, these initiatives are helping to reduce the average duration of interruption and average number of affected properties per event. As a result of these changes, DG3 performance is improving and customers are benefitting by experiencing less inconvenience and disruption to their supply.

Line 6 -Interruptions to Supply > 3hrs



The following table lists the outturn numbers of properties with outages >3 hours resulting from equipment failure for the last 6 years. During this time, the methodology was updated to include a detailed review process.

	Properties with Outages >3 Hours	Connected Properties	Percentage Outturn
AIR19	55,414	874,307	6.34%
AIR20	45,759	883,423	5.18%
AIR21	24,661	892,910	2.76%
AIR22	36,835 (inc. Dunore)	902,692	4.08%
	23,373 (exc. Dunore)	902,692	2.59%
AIR23	15,375	910,098	1.69%

Discussion on the Impact on the Trend Line of the Implementation of the IMS System

The NIW consensus is that the apparent improvement from AIR15 to AIR18 is due in part to the introduction of IMS in July 2014 when, until March 2018, the absence of a detailed review process for unplanned interruption events lasting between 3 hours and 6 hours resulted in the over-reporting of affected property numbers associated with some historical interruption events. From April 2018 to March 2020, events involving more than 500 properties were reviewed in detail, from April 2020 to March 2021, events involving more than 100 were reviewed in detail and from April 2021 onwards, every event lasting more than 3 hours has been reviewed in detail because of the impact that they have on the lost minutes outturn. As the introduction of a review process has improved the accuracy of outturns, the Company has applied a correction factor of -61.113% to the 15/16 to 17/18 outturns in the graph below to restore data consistency and reveal the serviceability trend.



Accuracy Validation

In order to quantify the impact of the detailed review process, NI Water compared its 2018/19 datasets before and after review. 41 events meeting the review criteria were reviewed i.e. **unplanned interruptions >3hrs but <=6hrs and >500 properties**. A correction factor of -61.113% was then applied to any events in the July 2014 to March 2018 dataset that met the review criteria.

During 2020/21, NI Water expanded the review process to include events involving property counts between 100 and 500. An analysis of 74 reviewed events confirmed a reduction of

approximately 51% which was broadly consistent with the 46% reduction in the Table 2 Line 5 outturn. This indicates that the further refinement and accuracy of reporting measures, after the events have taken place, may be responsible for the majority of the improvement reported here rather than a general improvement in the behaviour of the Network.

The following table lists the unadjusted annual actual outturn numbers of unplanned interruption **events** lasting more than 3 hours, more than 6 hours and more than 12 hours from 2015/16 to 2022/2023.

	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
>3 hours	781	779	803	654	591	476	358	286
>6 hours	119	95	81	75	63	26	35	34
>12 hours	17	12	9	4	4	0	1	0

This table further suggests stability in the network for the > 3hours category.

Conclusion

With the impact of the Dunore trunk main burst of July 2021 excluded from the AIR22 outturn, this year's reduction of 7,998 properties (34%) is indicative of a decrease in the average number of properties affected by unplanned interruptions caused by bursts.

AIR22 Table 46 Line 6 outturn = 36,835
 Properties affected by Dunore = 13,462
 2022/23 outturn excluding Dunore = 36,835 - 13,462 = 23,373
 AIR23 Table 46 Line 6 outturn = 15,375
 Reduction = 23,373 - 15,375 = 7,998 (34%)

This has been achieved through the implementation of actions aimed at mitigating the impact of bursts. NI Water's ITS Strategy is focussed on improving DG3 performance and reducing the average number of lost minutes of supply per property. As part of the work being undertaken, the Company has engaged with colleagues from across the Water Sector to develop a better understanding of the technologies and techniques employed to deal with bursts and has invested in these areas.

Examples include the use of Mobile Booster Trailers that can be taken to the location of bursts and used to maintain water pressures while repairs are being carried out, thus greatly reducing the time that customers are out of supply. The Company also continues to invest in the proactive rehabilitation of its water main infrastructure, reducing the likelihood of bursts occurring on older parts of the network and in areas where issues have arisen in the past. Key elements of the ITS Strategy are listed below.

- **Capital Investment in Watermains**
- **Post-Interruption Reviews**
- **Working Differently**
- **SMART Network**
- **CALM Network**

The Dunore incident reconfirms the sensitivity of this performance measure to infrequent, one-off events involving large numbers of properties, the impact of which is similar to multiple events involving fewer properties and which should not be interpreted as a sign of worsening serviceability. Had it not been for the incident, the outturn would have been the second

lowest for this measure since regulatory reporting commenced in 2007/08, when details of the cause of interruptions was first captured by the Company.

There is no evidence in either the OMIS or IMS datasets (excluding atypical factors) to suggest that serviceability has been 'marginal' or 'deteriorating'. An assessment of asset performance based on the OMIS dataset confirms that serviceability was '**stable**' during the 7-year period from 2007/08 to 2013/14.

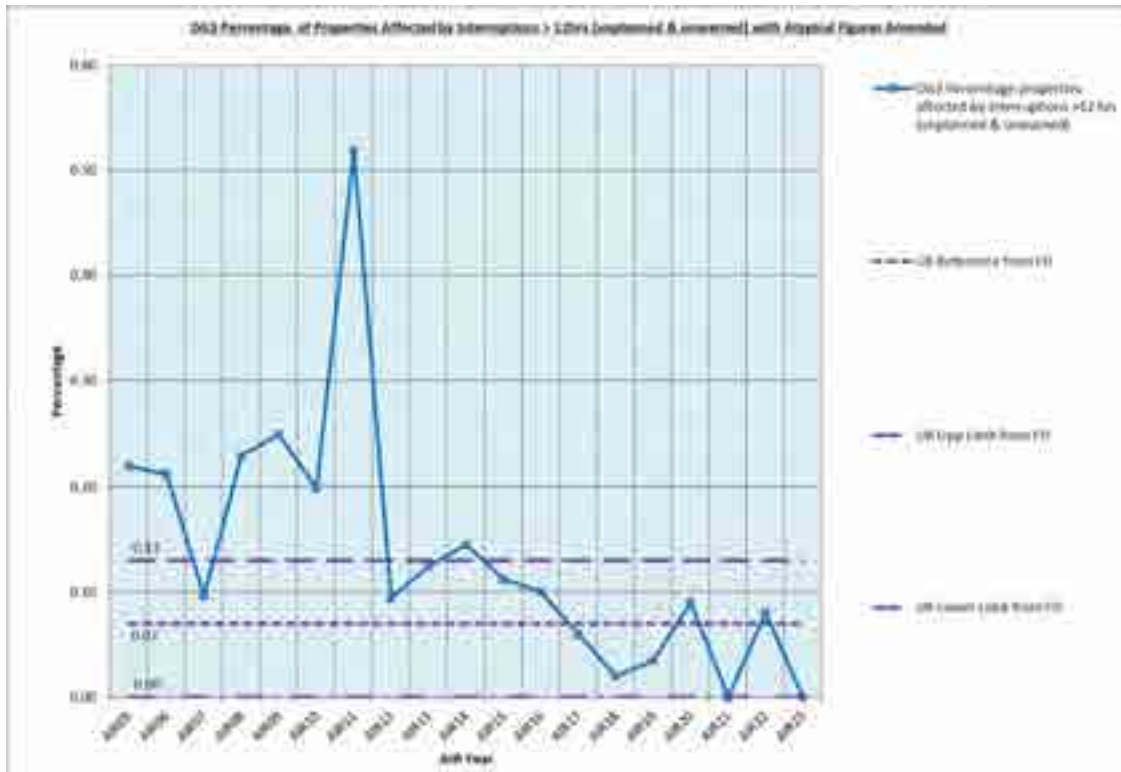
An assessment of asset performance based on the IMS dataset and with a correction factor applied to account for historical instances of over-reporting, confirms that serviceability has been '**improving**' during the 8-year period from 2015/16 to 2022/23. This is believed to be the result of an improved operational focus on work practices as opposed to an improvement in asset serviceability.

Although a trendline based on the 8-year outturn profile for this serviceability measure indicates an overall improving trend, there have been years, including 2021/22, when the outturn did not conform to an improving trend. Taking this into account, the conclusion is that NI Water's performance for this measure remains '**Stable**'.

Line 8 – Percentage of Properties Affected by Interruptions > 12hrs

This year's outturn of zero **DG3 properties affected by an unplanned and unwarned interruption greater than 12 hours** was similar to the AIR21 outturn when no properties experienced such an interruption. During 2022/23, there was a summer high demand event followed by a winter freeze/thaw event but the numbers of properties affected by these events was minimal and this was mainly due to the large amount of forward planning and a general expectancy, based on previous experience. The Company has improved its ability to respond to such seasonal pressures on the network by investing time and resources in preparation for a worst-case scenario.

The 2019/20 outturn of 751 was representative of a number of individual events. The 2021/22 outturn of 710 was representative of a single event, a burst on a pumped trunk main, close to Dunore Water Treatment Works.



The following table lists the percentage outturn numbers of properties with outages >12 hours for the last 6 years.

	Properties with Outages >12 Hours	Connected Properties	Percentage Outturn
AIR18	190	862,988	0.02%
AIR19	308	874,307	0.04%
AIR20	751	883,423	0.09%
AIR21	0	892,910	0.00%
AIR22	710	902,692	0.08%
AIR23	0	910,098	0.00%

Table Summary of equipment failures 2007/08-2022/23

Summary of unplanned property outage outturns >12hrs **excluding** the impact of adverse weather events, industrial action, the Head Road, Kilkeel incident **and** interruptions where the cause was unrelated to equipment failure.

	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23
Outturn	1,655	1,358	1,563 ¹	697 ²	663	1,017 ³	1,105	928 ⁴	839	344	190 ⁵	308	751	0	710	0

Note 1: Freeze/Thaw Event from 24 December 2009 to 21 January 2010
 Note 2: Freeze/Thaw Events from 8 Dec 2010 to 12 Dec 2010 & 21 Dec 2010 to 6 Jan 2011; Head Road, Kilkeel incident
 Note 3: Adverse Weather Event from 22 to 27 March 2013
 Note 4: Industrial Action from 22 December 2014 to 21 January 2015
 Note 5: Severe Flooding Event – 22 August 2017

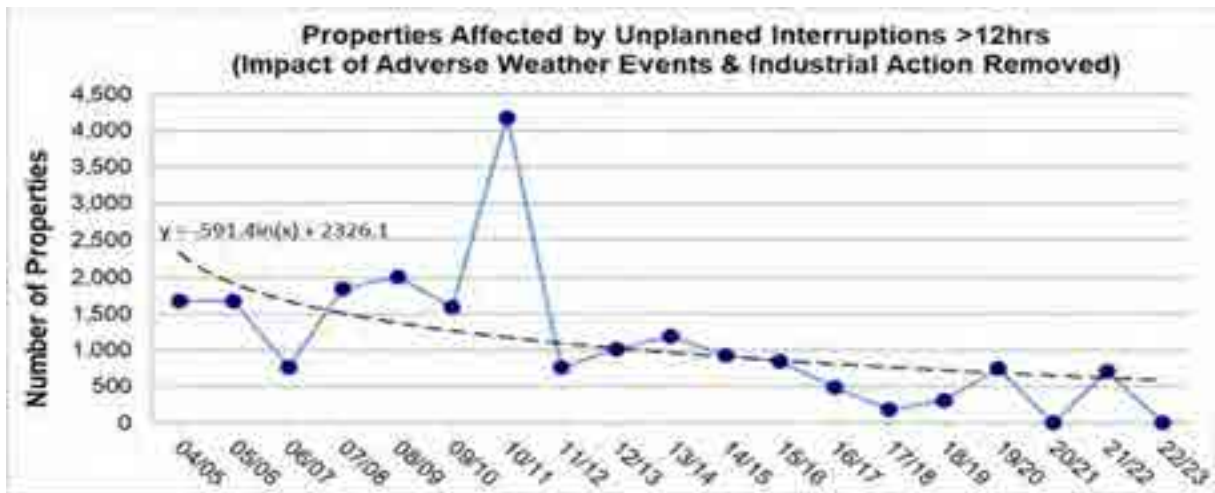
These figures are considered a very accurate output for each year, as they have been arrived at by a thorough examination of individual incidents on a one-by-one basis by NIW staff.

The conclusion is that, although the annual outturn for Table 46: Line 8: DG3 Percentage properties affected by interruptions >12 hrs (unplanned & unwarned), continues to be stable, the ongoing perceived improvement of previous years may be more likely to be attributed to the impact of NI Water’s **ITS Strategy** than asset performance.

Note: Although there were no extreme or atypical weather events in 2019/20, the outturn of **751** (above) was higher than the previous three outturns because of the severity of two of the four interruption events making up the figure, as summarised in the following table. The figures are however within the acceptable envelope in this period.

Events in 2019/20	>6hrs		>12hrs		>24hrs	
	Props	%	Props	%	Props	%
Multiple bursts on trunk main between Tullywhisker and Rakelly SRs	1,824	0.206	233	0.026	23	0.003
Burst main, Craigstown Road, Kells	626	0.071	463	0.052	0	0.000
Burst main, Jacksons Road, Holywood	400	0.045	33	0.004	0	0.000
Burst main, Lettermire North SR, Foreglen Road, Londonderry	49	0.006	22	0.002	0	0.000

Note: In the 2019/20 period, the Tullywhisker and Craigstown events each had a greater number of affected properties than the Company’s >12hr in-month target of 108. The Tullywhisker outage was not caused by pipeline deterioration but due to a local ground slippage.



The performance graph above, indicates an overall improving trend, despite there having been both year-on-year increases and decreases in the annual outturns. However, the perceived improvement in performance is more likely to be attributed to an increased operational focus on work practices than an improvement in asset serviceability. As the purpose of this measure is to assess whether asset serviceability in the Water Infrastructure service area is improving, stable, marginal or deteriorating, NI Water’s overall assessment for this measure continues to be one of **‘stable’** performance.

To date, the impact of initiatives targeted towards improving performance has been greatest on the ‘more than 12-hour’ time band as the main focus has been on those interruptions that last the longest and which therefore have the greatest potential to inconvenience customers. The Company has a Post-Interruption Review (PIR) process, the aim of which is to establish learning points from ITS events, including unplanned interruption events lasting more than 12 hours. The Company is using new systems such as network modelling to assist with PIRs and has developed a Pressure Mapper App. Completion of a Service Failure Analysis (SFA) report is now required for interruptions to >500 properties for >3hrs. The reports will be used to help NI Water understand the wider range of root causes affecting performance and prevent repeat interruption occurrences, whilst IMS integration will facilitate the analysis process.

The conclusion is that although the annual outturn for Table 46: Line 8: **DG3 Percentage properties affected by interruptions >12 hrs (unplanned & unwarned)** is still near the lowest threshold target, the ongoing improvement of the last couple of years may more likely to be attributed to an improved operational focus on work practices than asset performance.

The performance for this Serviceability measure is “Stable”.

Line 12 – Percentage of Iron Samples Exceeding 75% of PCV



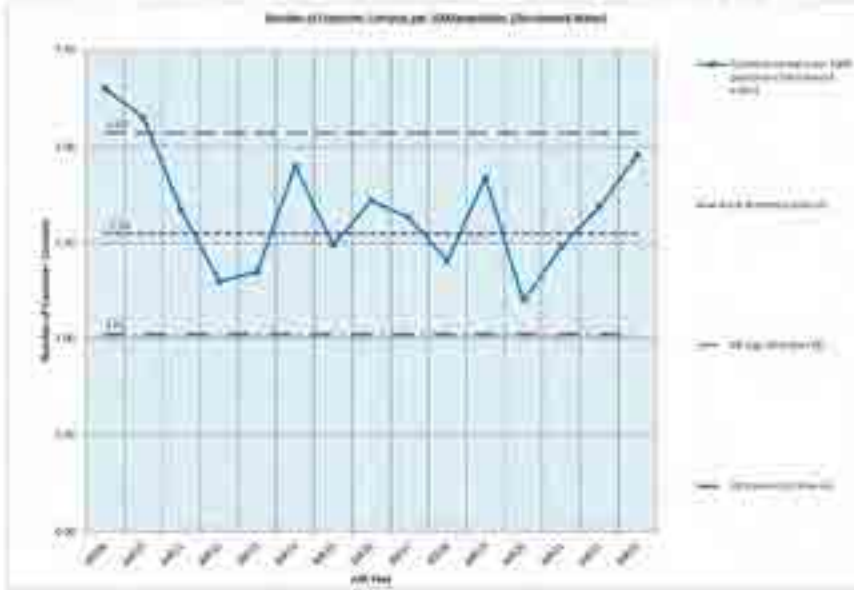
The AIR 23 figure is calculated from Line 11 divided by Line 9 = 26/2003 = 1.30%

The current failure rate is relatively low, with the ongoing trend fluctuating between the UR Reference limit and the lower limit (see above) for the last 5 years.

This figure is related to a random sampling regime.

Taking these factors into account, this therefore indicates that this measure indicates a **Stable** trend as the random sampling regime can skew the trend slightly from one year to the next.

Line 14 – Number of Customer Contacts per 1000 population (Discoloured Water)



The Company has arrived at a 'Stable' assessment for this measure.

The Population figure utilised here for the AIR23 return is 1,912,090
The output figure is therefore 3741 relevant contacts/1,912,090 = 1.96

During AIR23, NI Water recorded 3,741 relevant contacts to be divided by a population figure of 1,912,090 = 1.96

This output suggests that this trend is Stable, as the graph remains within the upper and lower limits of the target envelope

Summary

The trend has remains between the UR upper and lower reference level
Any perceived trends will be monitored by NI Water
This measure is considered to be **Stable**

See the actual contact numbers in the table below during this period.

	AIR 17	AIR 18	AIR 19	AIR 20	AIR 22	AIR 22	AIR 23
Average Monthly Number of Calls on This Issue	252	219	287	188	234	268	312
Total Customer Contacts on Water Network for Discolouration Issues	3029	2632	3447	2257	2807	3220	3741

Total Calls Logged Per Calendar Month in 2022 (For AIR 23 Reporting Period)

Discolouration Contacts per month 2022	
Month	Count of Contact
Jan Count	252
Feb Count	314
Mar Count	351

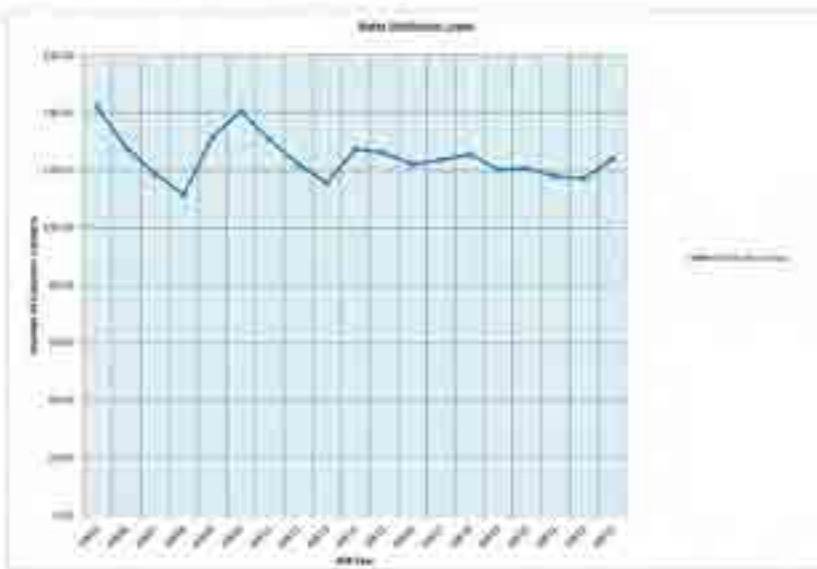
Apr Count	379
May Count	321
Jun Count	324
Jul Count	392
Aug Count	342
Sep Count	275
Oct Count	299
Nov Count	290
Dec Count	202
Grand Count	3741
Average Monthly number of contacts	312

Total Calls Logged Per Calendar Month in 2022 (For AIR 23 Reporting Period)



Line 15 – Water Distribution Losses

This information as an explanatory factor for mains bursts which can be monitored for potential mains bursts trends.



The Water Distribution losses total for **AIR23** = 123.79 ML/day

This figure is comparable to the output figures since the start of PC15

This is calculated by subtracting Lines 16 (DSOU) and 20 (Water Delivered) from Line 26 (Distribution Input).

This Indicator is considered to **Stable**

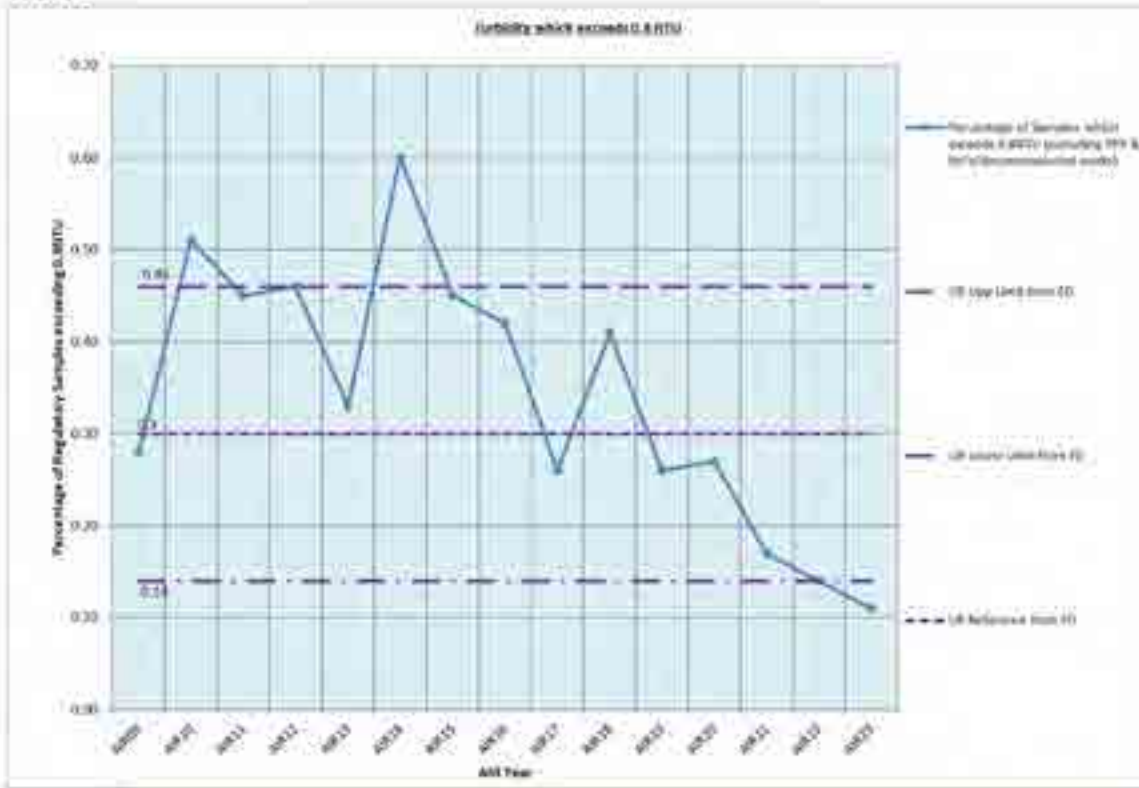
Line 30 – Company’s overall serviceability assessment for water non-infrastructure

The serviceability assessment has been designated as **Stable** as the trend analysis associated with the basket of serviceability indicators, used to assess serviceability for water non-infrastructure, are either within, or have outperformed the control limits based on the latest AIR23 information.

This can be seen in the serviceability graphs below and the associated comments:

Primary Indicator

Line 20 – Turbidity which exceeds 0.8NTU – excluding PPP & BH's/decommissioned works

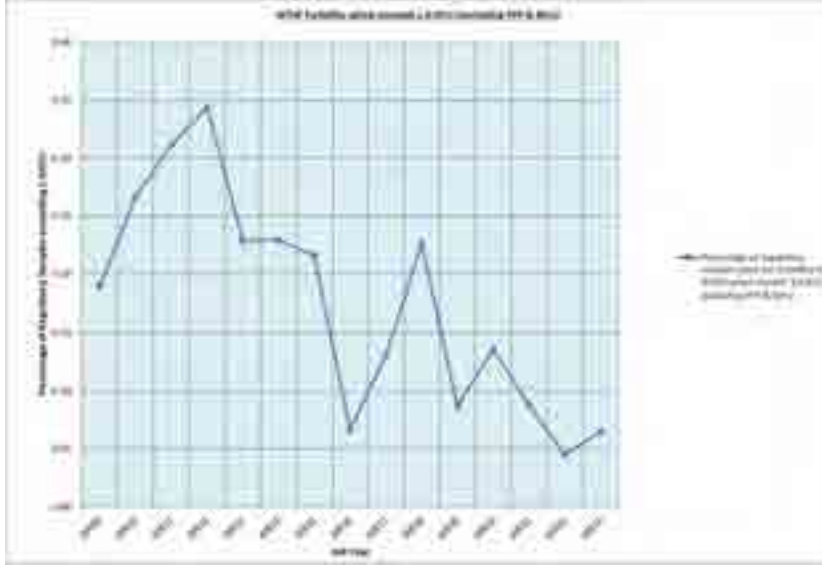


The output for AIR 23 = 0.11%

The AIR 23 figure is calculated from Line 19 = 5 failed regulatory samples divided by Line 17 = 4,601 (total samples) and calculated as a percentage =0.11%

For the last 5 years the trend has kept between the lower and the median of the agreed UR Limits, on the graph.

This measure is considered to be **Stable**

Secondary Indicators**Line 18 WTW Turbidity which exceeds 1.0 NTU**

The AIR 23 figure is calculated from line 18 = 3 failed regulatory samples divided by Line 17, = 4,601 samples, expressed as a percentage = $6/6424 = 0.06\%$

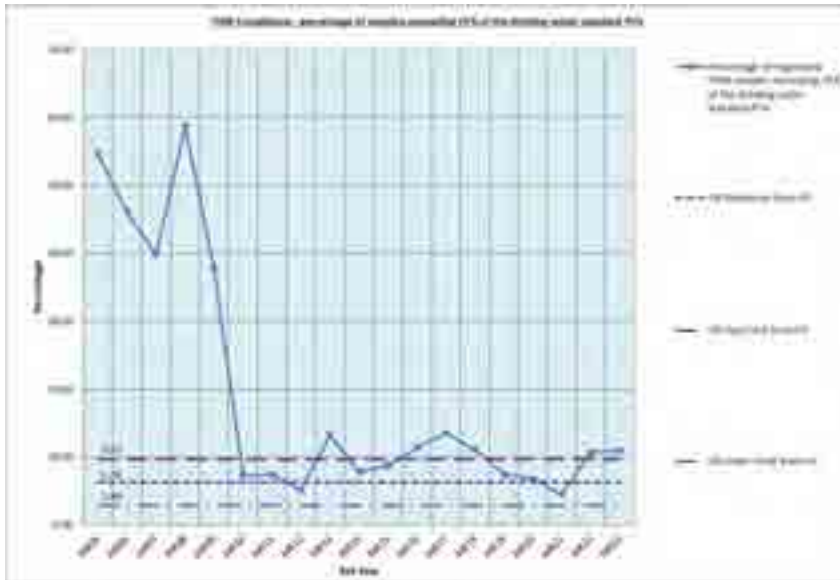
This factor is included as an indicator only. The outputs from the last three years have shown a pattern, not exceeding 0.15% for the last 5 years.

The “WTW Turbidity which exceeds 1.0 NTU – excluding PPP & BH’s/decommissioned works” does not have indicator limits/references set by the Regulator. It has been included for illustrative purposes only.

NIW continue to carry out investigations in relation to quality check issues with sample points and analytical equipment, which can indicate exceedances, but are not generally reflective of the water quality, or the Serviceability of the WTW.

This measure is considered to be **Stable**.

Line 24 - THM Compliance - percentage of samples exceeding 75% of the drinking water standard PCV



This output is calculated by dividing Line 23 = 47 samples which failed in this range, by Line 21= 429 samples taken , i.e. $47/429 =$ expressed as a percentage =10.9%

As the AIR17 figure had resulted in a significant cumulative rise above the Upper Limit for the second consecutive year, serviceability for this indicator was seen as Deteriorating. However AIR17 to AIR23 outputs have shown some improvement, and is therefore now considered to be **Stable**.

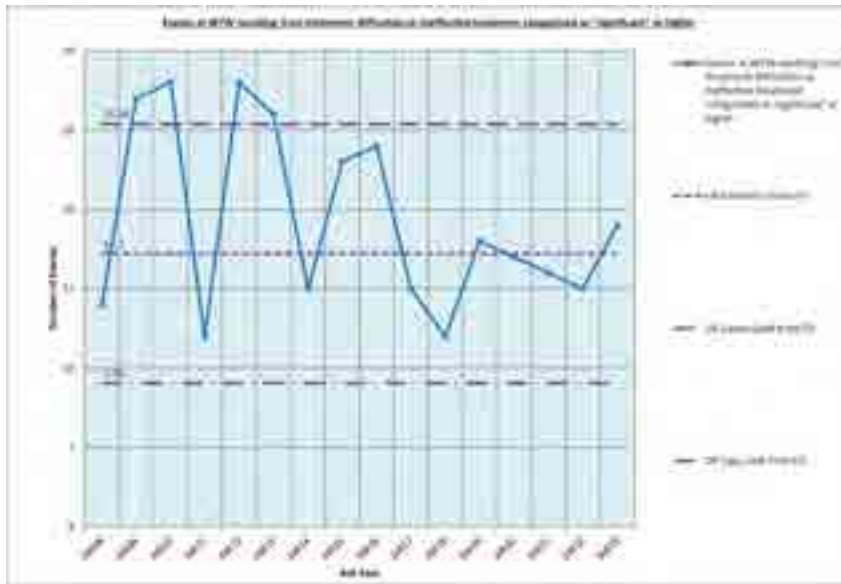
It should be noted that mains water temperature was higher on average in 2016/17 than in previous years, which would contribute to the increase in concentration and the further exceedance, to greater than 75% of the PCV.

THM Action Plans have been developed, and both THM results and the Action Plans are discussed on a monthly basis at the Water Quality Compliance Review Group.

The WTWs have a final water operational monitor for THMs, which acts as a proactive alarm if 50% of the PCV (50µg/l) is measured. THMs outputs are regularly monitored within NI Water

This measure is considered as **Stable**.

Line 25 - Events at WTW resulting from treatment difficulties or ineffective treatment categorised as “significant” or higher



The output for AIR23 is a number of events recorded is 19 nr

The PC21 trend is fluctuating around the UR median reference limit since AIR 17

“Events at WTW resulting from treatment difficulties or ineffective treatment categorised as significant or higher” to DWI, has continued, since AIR 14, to perform as **Stable**.

Line 28 - Service Reservoirs and Water Towers Coliform Compliance – Secondary Indicator



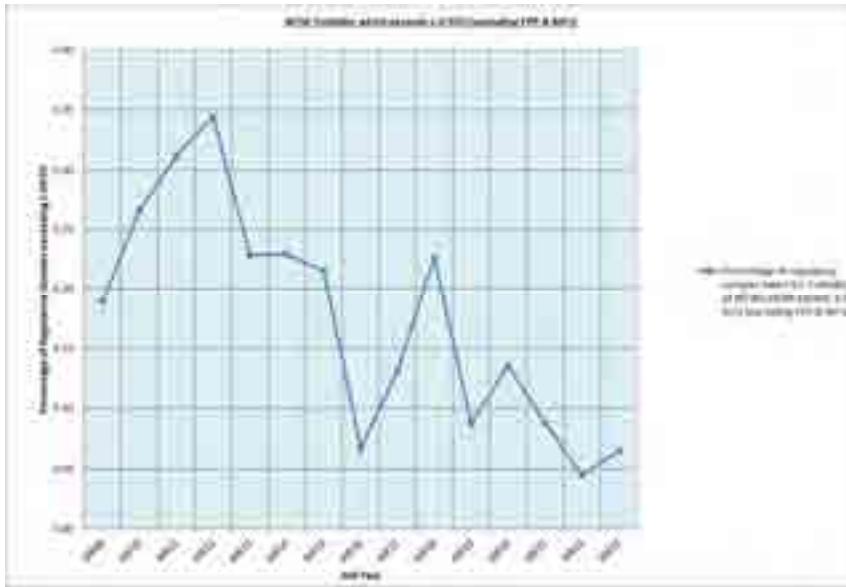
The AIR 23 figure is calculated from Line 27 (number of failed samples) = 17 divided by Line 26 = Total number of samples taken 14,887nr

The output is 17/14 887 expressed as a percentage = 0.11%

This figure has fluctuated between the UR median reference limit and the UR Upper limit since AIR17 This is a result of proactive inspections and refurbishments and proactive SR management.

“Service Reservoirs and Water Towers Coliform Compliance” has continued to show **Stable** performance over recent years.

Line 29 – Unplanned Reactive Maintenance (Water Non Infra) – Percentage of Availability of Critical Assets



Although this indicator is the Percentage of Availability of Critical Assets the figures in the above graph depict the non-availability of critical assets for illustrative purposes, and to maintain a consistent approach with other graphs within this document.

The figures are based on telemetry data for the critical items of plant in a failed state. As this is relatively new reported data, the reference and limits have not been set, as a larger range of data is required before Serviceability can be reasonably assessed.

The reduction of items in a failed state over recent years may be due to routine proactive maintenance and the prioritisation of capital investment to sites/assets where most required.

There is a continued focus on the out of service database and returning failed assets to service as soon as possible. This has resulted in this reduction over previous few years, however, it is accepted that due to the nature of the industry there will always some level of unavailability of assets. This trend is stable ,see graph above

The returned figure for this measure for AIR 23 is 0.72%

Line 45 – Company’s overall serviceability assessment for Sewerage Infrastructure

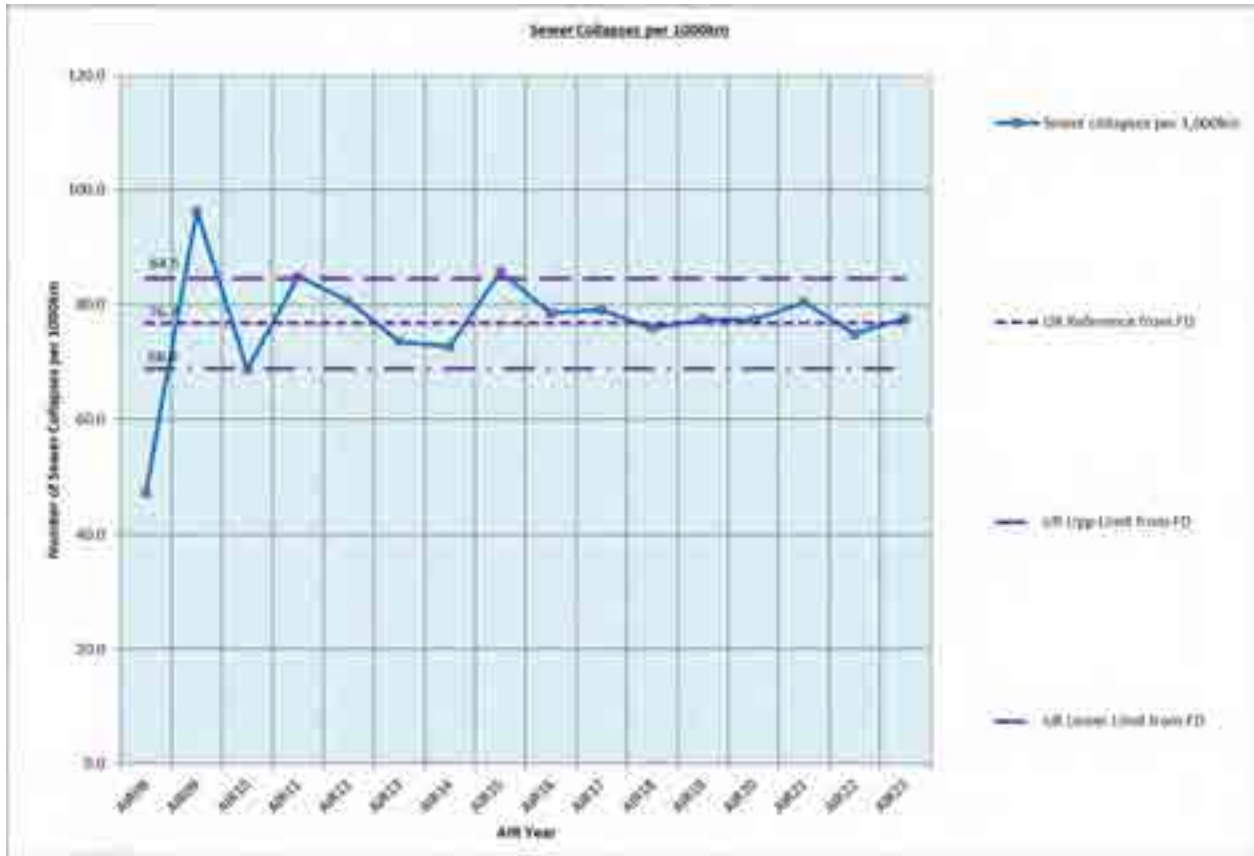
The serviceability assessment has been designated as Stable as the trend analysis associated with the basket of serviceability indicators, used to assess serviceability for sewerage infrastructure, are all within the control limits or under the lower control limits based on the latest AIR23 information.

Wastewater Infra Serviceability

Primary Indicator

Line 35 – Sewer Collapses per 1,000km

This graph shows the number of collapses reported over the AIR return periods, which would indicate a continuing Stable performance for AIR23.

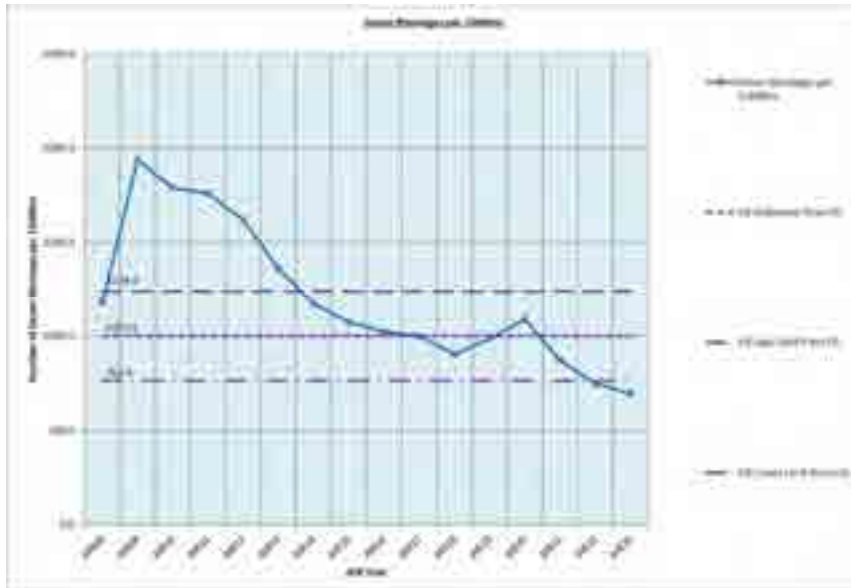


Secondary Indicators

Line 37 – Sewer Blockages per 1,000km

This graph shows the number of blockages per 1000km over the different AIR return periods, which would indicate an Improving performance.

The reduction strategy set out by NI Water is making a positive impact in the reduction of sewer blockages. By the use of the hotspot tool, letter drops in certain catchments and an increased programme of CCTV, the number of blockages has greatly reduced since 2008/09.



Line 39 - Number of H, M and L Pollution Incidents from Sewer Network

This graph shows the high, medium and low pollution incidents from the sewer network over the AIR return periods for CSO's, rising mains and foul sewers. Which would indicate a Stable performance.



Line 42 – Total Number of (Sewerage) Equipment Failures Repaired

This graph shows the total number of sewerage equipment failures repaired and continues to show a Stable performance.

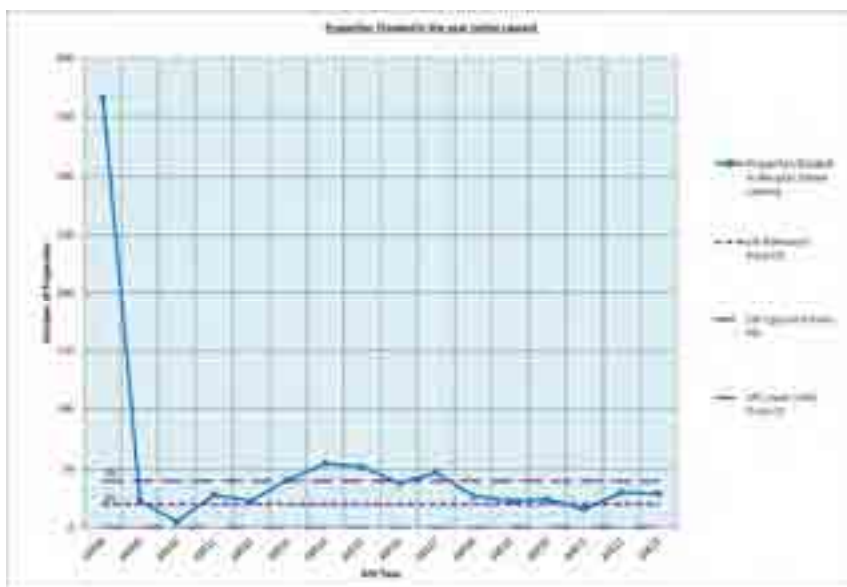


Tertiary Indicators

Line 40 – Properties Flooded in the Year

This indicator is to monitor performance and not incorporated in the serviceability assessment, it has however been included as a Tertiary Indicator. It continues to perform as Stable.

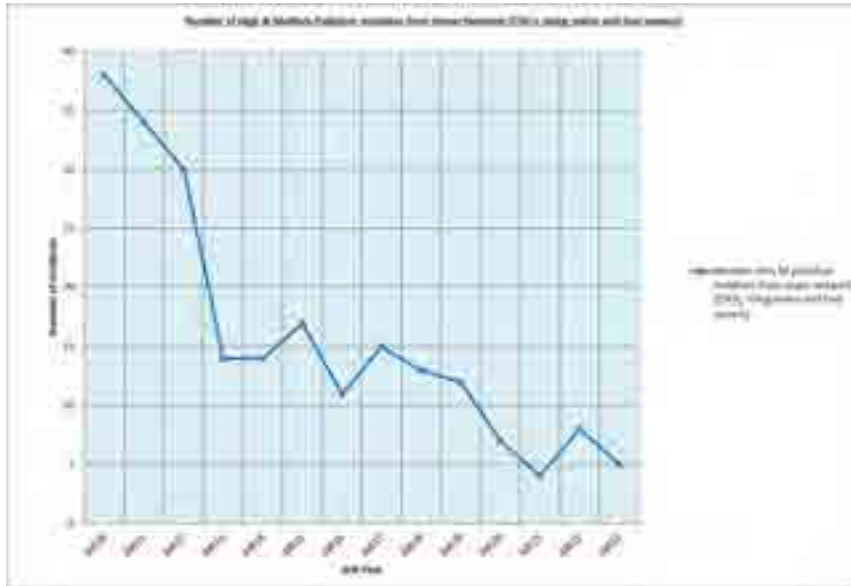
NB This graph has been suspended by the NIAUR.



Other Informative Graphs

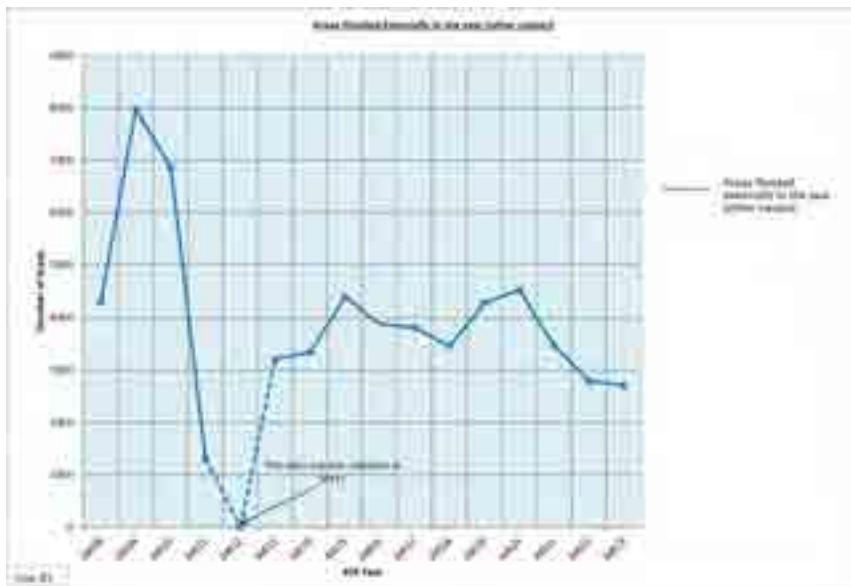
Line 38 – Number of H and M Pollution Incidents from Sewer Network

This graph has been submitted for information purposes only.



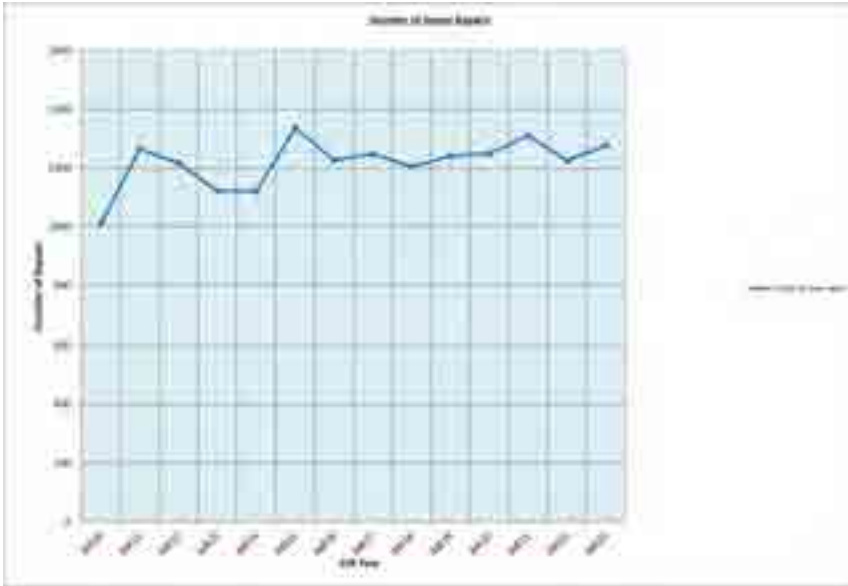
Line 41 – Areas flooded externally in the year

This graph is included for information only.



Line 44 – Number of sewer repairs

This graph is included for information only.



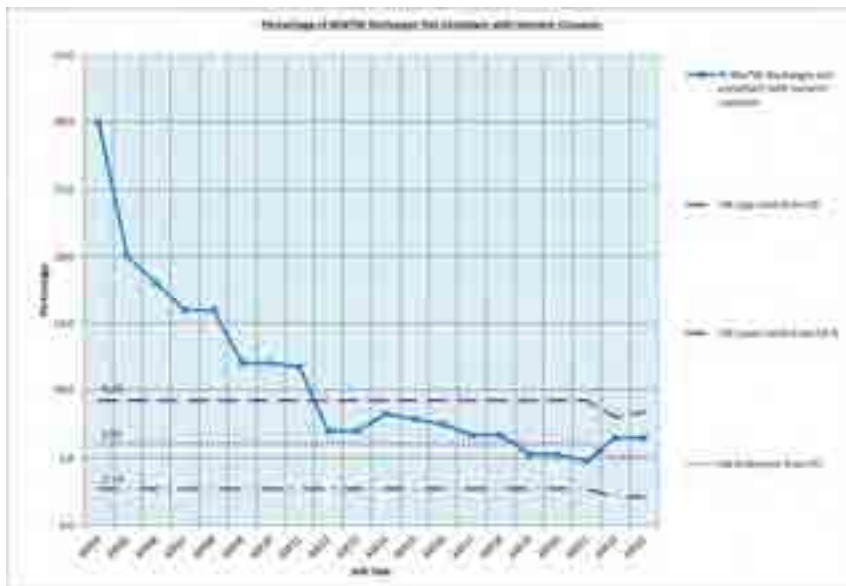
Line 54 – Company’s overall serviceability assessment for wastewater non-infrastructure

The serviceability assessment for AIR23 has been designated as Stable as the trend analysis associated with the basket of serviceability indicators, used to assess serviceability for wastewater non-infrastructure, shows both the Primary and Secondary Indicators as Stable.

Primary Indicator

Line 46 – Percentage of WWTW Discharges Not Compliant with Numeric Consents

“Percentage of WWTW Discharges Not Compliant with Numeric Consents” has continued to show Stable performance over recent years. The regular investment from Capital Maintenance and Quality driven projects has helped maintain this Stable output. NB The NIAUR updated Limits for data after AIR21.

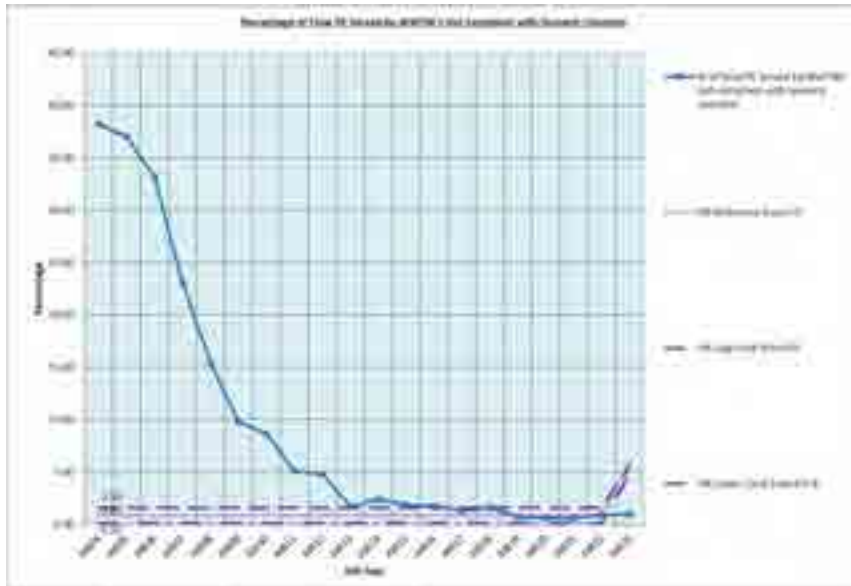


Secondary Indicators

Line 47 – Percentage of Total PE Served by WWTWs Not Compliant with Numeric Consents

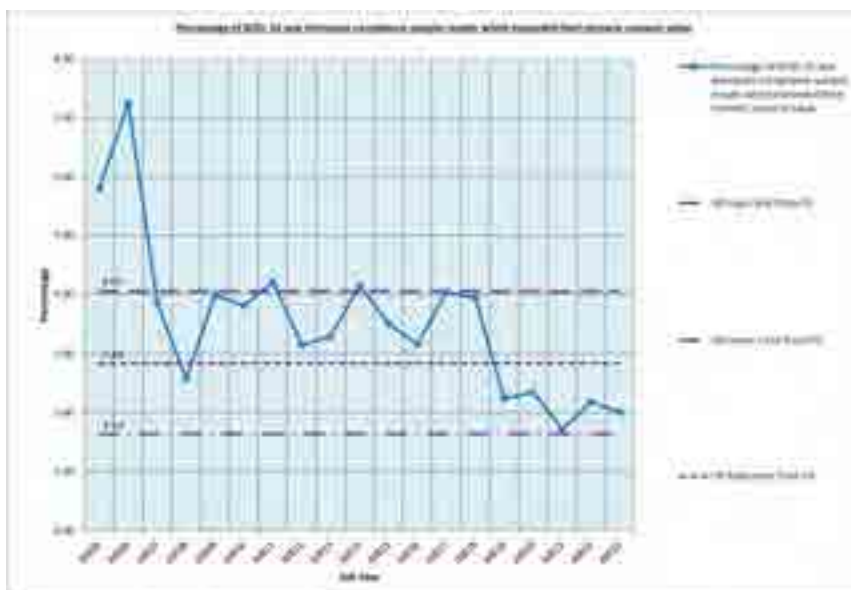
“Percentage of Total PE Served by WWTWs Not Compliant with Numeric Consents” has shown Stable performance.

NB The NIAUR updated Limits for data after AIR22.



Line 50 – Percentage of BOD, SS and Ammonia compliance sample results which exceeded their numeric consent value

Since the initial outlying figures of AIR05 & AIR06 the “Percentage of BOD, SS and Ammonia compliance sample results which exceeded their numeric consent value” has continued to perform well in AIR23.



Line 51 - Number of WWTWs with one or more compliance sample results (BOD, SS or Ammonia) exceeding the numeric consent value

“Number of WWTWs with one or more compliance sample results (BOD, SS or Ammonia) exceeding the numeric consent value” has for the fourth consecutive year out-performed the Lower Limit. This has become evident by both the annual investment in assets and the extensive operational effort.



Other Informative Graph

Line 53 – Unplanned Reactive Maintenance (Wastewater Non Infra) – Percentage of Availability of Critical Assets

Although this indicator is the Percentage of Availability of Critical Assets, the figures in the above graph depict the non-availability of critical assets for illustrative purposes, and also to maintain a consistent approach with other graphs within this document.

The figures are based on telemetry data for the critical items of plant in a failed state. As this is relatively new reported data, Reference and Limits have not been set as a larger range of data is required before Serviceability can be reasonably assessed.

The reduction of items in a failed state over recent years may be due to the benign weather, routine proactive maintenance and/or the prioritisation of capital investment to sites/assets where most required.

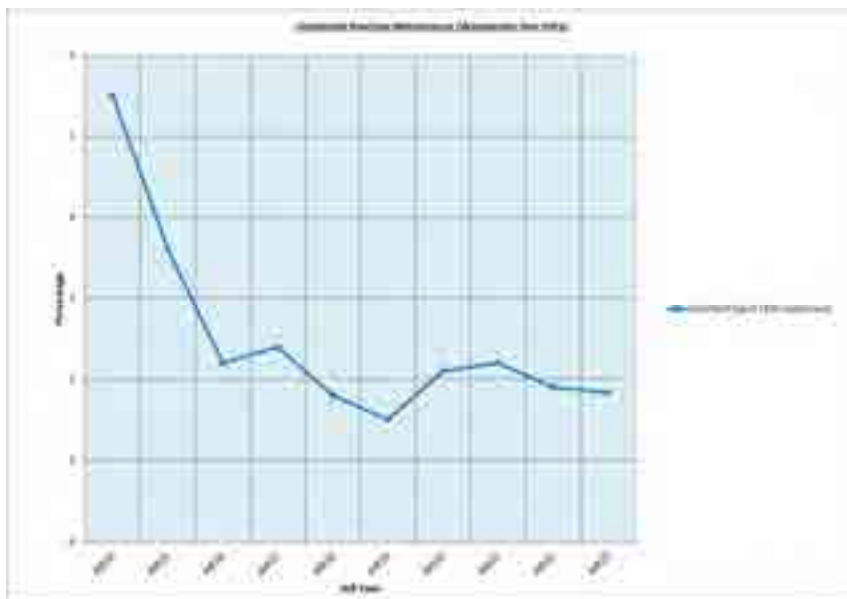



Table 47 - Development Outputs

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DEVELOPMENT OBJECTIVE [DO]		
Ref	Development Objective	Sub-Programme
0	Master DO Programme	All
GOVERNANCE		
Directorate	SRO	Project Lead
AD	[REDACTED]	[REDACTED]
REASON FOR MASTER PROGRAMME		
<p>The UR Monitoring Expectations column in Annex T had a common expectation for most DOs of:</p> <p>We expect NI Water to - Develop and submit an updated programme for the delivery of this objective.</p> <p>This expectation is fulfilled by the attached Master DO Programme v0 07/07/23 pdf for this AIR submission.</p>		
 <p>Adobe Acrobat Document</p>		

DEVELOPMENT OBJECTIVE [DO]		
Ref	Development Objective	Sub-Programme
01	Consumer Engagement	N/A
GOVERNANCE		
Directorate	SRO	Project Lead
C&OD		
REASON DEVELOPMENT OBJECTIVE IS NECESSARY		
The purpose of this objective is to ensure that we are considering both the views and perceptions of customers that contact NI Water as well as the silent majority of customers who do not need to contact us. <i>(Note: reason development text from PC21 FD ANNEX T is blank).</i>		
DEVELOPMENT OBJECTIVE TO CONFIRM SOLUTION SPEND IN PC21 &/or PC27 (Note: This is not to confirm solution spend)		
PC21 only <input checked="" type="checkbox"/>	PC27 only <input type="checkbox"/>	PC21 and PC27 <input type="checkbox"/>
PROJECT SCOPE		
<p>Strategic</p> <p>We have entered a long-term strategic partnership with engagement experts Ipsos MORI that will run through to the middle of PC21. In their role, they will:</p> <ul style="list-style-type: none"> • Provide leadership and management of effective and appropriate ongoing customer and stakeholder engagement. • Conduct an annual omnibus survey to ensure that we are considering the views and perceptions of the silent majority. • Spend 3-4 days per year reviewing industry trends, attending engagement sector conferences and researching innovative engagement approaches to ensure that engagement activities are always evolving and improving. • Undertake a consumer research and engagement review/appraisal at the mid-point of PC21. <p>At the mid-point of PC21, we will commence retender of strategic consumer engagement contract in preparation for PC27.</p> <p>Operational</p> <p>In tandem, we will continue to learn from our daily interactions with customers by: analysing the type of contacts to help us prioritise what matters to our customers; continuing to survey them on a near real-time basis; using this information to develop insight that we will share with our operational colleagues and agree actions to drive improvement offering our customers contact choices that complement their lifestyle.</p> <p>No changes to the above scope.</p>		
COMMENTARY ON MATERIAL CHANGES TO SCOPE		
N/A		
PROJECT OUTCOMES		
Agreed actions and tangible initiatives to drive customer satisfaction improvements that have been developed in conjunction with operational colleagues and based upon survey response analysis and insights collected from customers. <i>(Note: project outcomes text from PC21 FD ANNEX T is blank).</i>		
No change to outcomes.		

COMMENTARY ON MATERIAL CHANGES TO PROJECT OUTCOMES
N/A
UR MONITORING EXPECTATIONS
<p>NI Water did not provide any detail in its submission beyond the scope of this development objective.</p> <p>The objective is currently at the early stage of introducing new consumer metrics and KPIs in year 1 and year 2 of PC21 to inform the Mid-term Review (see long list of new consumer measures and metrics included under PC21 FD Main Report - Section 3 Outputs and Outcomes).</p> <p>The CM/SAT Working Group will develop the long list of new consumer measures and metrics. We also propose that a new Codes of Practice sub-group of the CEOG should report to CEOG on progress regarding the forthcoming review of NI Water's Codes of Practice and consumer promises.</p> <p>The UR will work with NI Water and other stakeholders to agree the exact detail of the associated monitoring requirements. As a minimum, progress will be monitored and reported on through the annual cost and performance report process.</p> <p>It is anticipated that work will need to be undertaken by the PC21 Mid-term Review or earlier.</p>
HOW UR MONITORING EXPECTATIONS HAVE BEEN FULFILLED
<p>22/23 Update:</p> <p>Strategic</p> <ul style="list-style-type: none"> • Annual Omnibus survey (conducted by Ipsos MORI) completed for 22/23 with results due to be shared with UR and CCNI at a CM/SAT Meeting in June 23. • The mid-term review of NI Water Customer Measures is nearing completion. CM/SAT has been meeting monthly since Jan 23 to agree improvements to the Unwanted Contacts and Net Promotor Score measures as well as potential future measures that the CM/SAT group will develop through the remainder of PC21. • The review of NIW Codes of Practice is now complete. The revised Codes of Practice were formally approved by UR on 24th Aug 22 and launched by NI Water in October 22. <p>Operational</p> <ul style="list-style-type: none"> • NI Water continue to survey customer contacts through the Voice of the Customer programme. Results and insights continue to be shared with operational colleagues through monthly meetings where improvement initiatives are developed and discussed. • Based upon customer views and survey responses NI Water have developed a Customer Measures Improvement Plan which includes end to end journey reviews, improvement initiatives and milestones. A Customer Programme Portfolio Board has also been established to monitor progress and ensure governance.
PROGRAMME
See Master DO Programme v0 dated 07/07/23.

KEY MILESTONES FOR DEVELOPMENT OBJECTIVE					
Description Key PC21 FD DO Milestones	FD21 Annex T Milestone Target Date	Status Vs FD21 Target	Current Milestone Target Date	Status Vs Current Target	Commentary on Material Milestone Date Changes <u>AND / OR</u> Reasons for any material Delay
Conduct 21/22 Annual Omnibus Survey	N/A – No milestone within FD	N/A – No milestone target within FD	Apr 22	Complete	
Develop 22/23 action plan based upon real time customer survey information and contact analytics.	N/A – No milestone within FD	N/A – No milestone target within FD	May 22	Complete	
Completion of Codes of Practice (CoP) review	N/A – No milestone within FD	N/A – No milestone target within FD	Aug 22	Complete	Formally approved by UR in Sept 22
Work with UR and other CM/SAT stakeholders to review consumer metrics, COP, surveys and insights.	N/A – No milestone within FD	N/A – No milestone target within FD	Continuous	On Target	CM/SAT continues to meet on a regular basis, with monthly meetings since Jan 23 to discuss changes to customer measures and metrics.
Progress update to be provided in 2022 Annual Information Return	N/A – No milestone within FD	N/A – No milestone target within FD	June / July 22	Complete	
Progress update to be provided in 2023 Annual Information Return	N/A – No milestone within FD	N/A – No milestone target within FD	Jul 23	On Target	
Conduct 22/23 Annual Omnibus Survey	N/A	N/A	April 23	Complete	
Develop 23/24 action plan based upon real time customer	N/A	N/A	May 23	Complete	

survey information and contact analytics.					
Agree Mid-term changes to customer measures and metrics.	N/A	N/A	July 23	On going	
Agree need / requirements of a consumer research and engagement review/appraisal at the mid-point of PC21.	N/A	N/A	Sept 23	On target	
KEY MILESTONES FOR SOLUTION INVESTMENT					
N/A	N/A	N/A	N/A	N/A	N/A
EXPENDITURE [See Also Table DO1 below]					
FD21 Annex T Estimated Total Cost of DO (2018/19 prices)	Forecast Cost of DO (Nominal Prices)		Commentary on Material Total Cost Changes for DO		
N/A	N/A		N/A		
PC21 FD Estimated Cost of Solution (2018/19 prices)	Forecast Cost of Solution (Nominal Prices)		Commentary on Material Solution Cost Changes		
N/A	N/A		N/A		
ACTIVITY COMPLETED TO DATE AND OUTCOMES TO DATE (MARCH 2023)					
<p>21/22 Update:</p> <ul style="list-style-type: none"> Annual Omnibus Survey – We have completed our 21/22 Customer Satisfaction and Advocacy Survey. Results are positive with a good increase in domestic advocacy (58%-66%) and other satisfaction measures staying roughly the same. Customer Surveys & Insights – We are continuing to survey all customers that contact NI Water, analysing results and sharing monthly with operational colleagues. We have developed a 22/23 Customer Measures Improvement Programme based upon these results. Code of Practise Review – Internal reviews rounds have been completed, proposals have been shared and endorsed by CCNI and proposed changes shared with NIAUR. Genesis have been appointed to design new documentation. <p>22/23 Update:</p> <ul style="list-style-type: none"> Annual Omnibus Survey – We have completed our 22/23 Customer Satisfaction and Advocacy Survey. Results will be shared with UR and CCNI in June 23. Customer Surveys & Insights – We are continuing to survey all customers that contact NI Water, analysing results and sharing monthly with operational colleagues. We have developed a 23/24 Customer Measures Improvement Programme which includes end to end journey reviews, improvement initiatives and milestones. A Customer Programme Portfolio Board has also been established to monitor progress and ensure governance. Code of Practise Review – Now complete. 					

<ul style="list-style-type: none"> Customer Measures & Metrics - CM/SAT has been meeting monthly since Jan 23 to agree improvements to the Unwanted Contacts and Net Promotor Score measures, as well as potential future measures that the CM/SAT group will develop through the remainder of PC21. 				
PLANNED NEXT STEPS FOR DELIVERY				
<ul style="list-style-type: none"> Customer Measures & Metrics - Agree changes to customer measures and metrics in advance of PC21 mid-term. PC21 mid-point consumer research and engagement review/appraisal – agree need / requirements with CM/SAT group by Sept 23. Annual Omnibus Survey - Conduct 23/24 survey in Q4. Customer Surveys & Insights - Continue to survey all customers that contact NI Water, analysing results and sharing monthly with operational colleagues. 				
PROPOSED MAINTENANCE EXPENDITURE / ADDITIONAL OPEX from CAPEX				
N/A				
IMPACT OF SCOPE / PROGRAMME CHANGES ON CAPITAL DELIVERY / OUTPUTS PROGRAMME				
N/A				
IMPACTS ON CAPITAL OUTPUTS PROGRAMME LINKED TO TABLES 40, 40a & 40b				
<table border="1"> <tr> <td>Links to Tables Completed</td> <td>Yes <input type="checkbox"/></td> <td>No <input checked="" type="checkbox"/></td> <td>Comments</td> </tr> </table>	Links to Tables Completed	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Comments
Links to Tables Completed	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Comments	
RISKS & ISSUES ASSOCIATED WITH THIS DEVELOPMENT OBJECTIVE				
Failure to agree mid-term changes to customer measures and metrics on time – Low risk as discussion are close to conclusion.				
WIDER BENEFITS OF THIS DEVELOPMENT OBJECTIVE				
N/A				
LINKAGE TO OTHER DEVELOPMENT OBJECTIVES				
There is no linkage to other Development Objectives				

Development Objective – Expenditure Summary

N/A – No expenditure.

DEVELOPMENT OBJECTIVE [DO]		
Ref	Development Objective	Sub-Programme
02	Consumer Protection / Customer Care Register	N/A
GOVERNANCE		
Directorate	SRO	Project Lead
C&OD		
REASON DEVELOPMENT OBJECTIVE IS NECESSARY		
<p>The purpose of this objective is to ensure:</p> <ul style="list-style-type: none"> the needs of vulnerable or disadvantaged domestic customers are prioritised. the continued promotion of services for vulnerable customers. active participation with the UR Consumer Protection Programme. <p>(Note: project outcomes text from PC21 FD ANNEX T is blank).</p>		
DEVELOPMENT OBJECTIVE TO CONFIRM SOLUTION SPEND IN PC21 &/or PC27 (Note: This is not to confirm solution spend)		
PC21 only <input type="checkbox"/>	PC27 only <input type="checkbox"/>	PC21 and PC27 <input type="checkbox"/>
PROJECT SCOPE		
<p>While our household customers do not directly pay a water bill and therefore are not financially vulnerable in relation to our services, we recognise that there are vulnerabilities due to age, disability, or medical conditions. We will:</p> <ul style="list-style-type: none"> Actively promote our Customer Care Register and the benefits it offers our customers; Continue to work closely with CCNI, the Utility Regulator and the range of other organisations on the Consumer Vulnerability Working Group to support their initiatives and promote our services to these customers; and Continue to work with other utilities to jointly promote our services and grow our Customer Care Register. <p>The Utility Regulator has commenced their Consumer Protection programme priority projects of best practice frameworks (1 and 2). We will actively participate in the Utility Regulator's flagship projects to promote best practice across our Organisation.</p> <p>No changes to the scope.</p>		
COMMENTARY ON MATERIAL CHANGES TO SCOPE		
N/A		
PROJECT OUTCOMES		
<p>Project outcomes for the Consumer Protection / Customer Care Register Development Objective:</p> <ul style="list-style-type: none"> continued growth of NI Water's Customer Care Register active participation with the UR Consumer Protection Programme <p>(Note: project outcomes text from PC21 FD ANNEX T is blank).</p> <p>No change to outcomes.</p>		
COMMENTARY ON MATERIAL CHANGES TO PROJECT OUTCOMES		
N/A		
UR MONITORING EXPECTATIONS		
<p>NI Water did not provide any detail in its submission beyond the scope of this development objective.</p> <p>This development objective is linked to the obligations for NI Water under the Consumer Protection Programme. It is expected to deliver benefits for consumers through enhanced</p>		

protection measures delivered, monitored and reported against established best practice benchmarks across regulated industries in the UK.

These projects are currently under development and will be progressed in line with the Consumer Protection Programme and Best Practice Frameworks Project.

The UR will work with NI Water and other stakeholders to agree the exact detail of the associated monitoring requirements. As a minimum, progress will be monitored and reported on through the annual cost and performance report process.

HOW UR MONITORING EXPECTATIONS HAVE BEEN FULFILLED

- NI Water has continued to engage with the UR Consumer Protection Programme returning a formal response to the Best Practice Framework consultation in April 22 and is currently waiting to hear from UR regarding outputs from this consultation exercise.
- In the meantime, NI Water has continued to promote and grow its Customer Care Register and progressed with consumer vulnerability accreditations as per the PC21 FD.

PROGRAMME

See Master DO Programme v0 dated 07/07/23.

KEY MILESTONES FOR DEVELOPMENT OBJECTIVE

Description Key PC21 FD DO Milestones	FD21 Annex T Milestone Target Date	Status Vs FD21 Target	Current Milestone Target Date	Status Vs Current Target	Commentary on Material Milestone Date Changes <u>AND</u> / <u>OR</u> Reasons for any material Delay
Response to Best Practice Framework consultation.	N/A – No milestone within FD	N/A – No milestone target within FD	Apr 22	Complete	
Undertake GAP analysis for potential future BSI 18477 Inclusive Service Provision assessment.	N/A – No milestone within FD	N/A – No milestone target within FD	Apr 22	Complete	
Continue to engage with stakeholders on NIAUR's Best Practice Consumer Protection Programme.	N/A – No milestone within FD	N/A – No milestone target within FD	Continuous	On Target	
Progress update to be provided in 2022 Annual Information Return	N/A – No milestone within FD	N/A – No milestone target within FD	June / July 22	Complete	

Progress update to be provided in 2023 Annual Information Return	N/A – No milestone within FD	N/A – No milestone target within FD	Jul 23	On Target	
Executive Committee endorsement for JAM Card Proposals	N/A	N/A	March 23	Complete	
Commence roll out of JAM Card training to staff	N/A	N/A	April 23	Complete	
Complete JAM accreditation	N/A	N/A	July 23	On Track	
KEY MILESTONES FOR SOLUTION INVESTMENT					
N/A	N/A	N/A	N/A	N/A	N/A
EXPENDITURE [See Also Table DO1 below]					
FD21 Annex T Estimated Total Cost of DO (2018/19 Prices)		Forecast Cost of DO (Nominal Prices)		Commentary on Material Total Cost Changes for DO	
N/A		N/A		N/A	
PC21 FD Estimated Cost of Solution (2018/19 Prices)		Forecast Cost of Solution (Nominal Prices)		Commentary on Material Solution Cost Changes	
N/A		N/A		N/A	
ACTIVITY COMPLETED TO DATE AND OUTCOMES TO DATE (MARCH 2023)					
21/22 Update					
<ul style="list-style-type: none"> Customer Care Register – We are continuing to promote the benefits and services of our Customer Care Register through various advertising campaigns including a joint leaflet with NIE. In 21/22 we increased the number of customers on our register by 7%. Consumer Protection – We are continuing to engage with NIAUR and other stakeholders as part of the NIAUR led “Best Practice Consumer Protection Programme”. In 21/22 we attended several stakeholder meetings and workshops, providing feedback when required to the programme team. We have completed introductory meetings with both BSI and NOW group regarding “BSI 18477 Inclusive Service Provision” and “Just a Minute” accreditations. In April 22 we completed the GAP analysis for BSI 18477, the first stage of the process. 					
22/23 Update:					
<ul style="list-style-type: none"> Customer Care Register – We are continuing to promote the benefits and services of joining our register through various advertising campaigns. In 22/23 we started to use targeted paid social media adverts, reaching over 78k customers in a single campaign. In 22/23 we increased the number of customers on our register by 14%. Consumer Protection – We are continuing to engage with NIAUR and other stakeholders as part of the NIAUR led “Best Practice Consumer Protection Programme”. In 22/23 NI Water returned a response to the Best Practice Framework consultation and are currently awaiting outputs from this exercise. 					

<ul style="list-style-type: none"> Vulnerability Accreditations – Following Executive Committee approval in March 23, we commenced the roll out of JAM Card accreditation to all NIW staff. We hope to achieve this accreditation in July 23.
PLANNED NEXT STEPS FOR DELIVERY
<ul style="list-style-type: none"> Continued promotion and growth of our Customer Care Register Further discussion with UR and other stakeholders following outputs of the Best Practice Framework consultation. Completion of JAM accreditation and continued work towards ISO 22458 Inclusive Service Provision.
PROPOSED MAINTENANCE EXPENDITURE / ADDITIONAL OPEX from CAPEX
N/A
IMPACT OF SCOPE / PROGRAMME CHANGES ON CAPITAL DELIVERY / OUTPUTS PROGRAMME
N/A
IMPACTS ON CAPITAL OUTPUTS PROGRAMME LINKED TO TABLES 40, 40a & 40b
Links to Tables Completed Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Comments
RISKS & ISSUES ASSOCIATED WITH THIS DEVELOPMENT OBJECTIVE
N/A
WIDER BENEFITS OF THIS DEVELOPMENT OBJECTIVE
N/A
LINKAGE TO OTHER DEVELOPMENT OBJECTIVES
There is no linkage to other Development Objectives.

Development Objective – Expenditure Summary

N/A – No expenditure

DEVELOPMENT OBJECTIVE [DO]		
Ref	Development Objective	Sub-Programme
03	NI Water Alpha Ltd - WTWs Treatability Improvements	04a
GOVERNANCE		
Directorate	SRO	Project Lead
AD		
REASON DEVELOPMENT OBJECTIVE IS NECESSARY		
This Project is currently at appraisal stage and sufficient detail is not available at present to fully assess requirements.		
DEVELOPMENT OBJECTIVE TO CONFIRM SOLUTION SPEND IN PC21 &/or PC27		
PC21 only <input type="checkbox"/>	PC27 only <input type="checkbox"/>	PC21 and PC27 <input checked="" type="checkbox"/>
PROJECT SCOPE		
<p>NI Water Alpha Ltd operates and maintains four WTWs (Dunore Point, Castor Bay, Ballinrees and Moyola) to deliver clean and safe water into the distribution network. A review is currently underway to ensure that all four of these works are compliant with regulatory and NI Water internal standards. Remedial actions necessary to address any shortcomings against the standards will also be identified.</p> <p>No change to scope.</p>		
COMMENTARY ON MATERIAL CHANGES TO SCOPE		
N/A		
PROJECT OUTCOMES		
<ul style="list-style-type: none"> Reduced risk of compliance failure, Maintaining a stable service in relation to provision of clean and safe drinking water, Allow assessment of potential future funding need. Needs and Options Report <p>It should be noted Treatability Reports and associated Business Cases act as the Needs and Options Report as described in the EC Dashboard key deliverables for this DO.</p> <p>No change to PC21 FD project outcomes.</p>		
COMMENTARY ON MATERIAL CHANGES TO PROJECT OUTCOMES		
N/A		
UR MONITORING EXPECTATIONS		
<p>Progress on the delivery of this objective will be monitored and reported on through the annual cost and performance report process as a minimum. In addition, the UR expects NI Water to:</p> <ul style="list-style-type: none"> Develop and submit an updated programme for the delivery of this objective. Engage with UR staff on the timing of additional engagement, reviews and the determination of expenditure. Keep stakeholders updated on developments and proposals through the ORG. Share completed treatability studies with Utility Regulator and DWI. Submit appropriate Annex A documentation to DWI, allowing sufficient time for consideration/approval. Complete and submit a change control to stakeholders for consideration/approval (if required). 		

- Submit business cases for solutions, including costs and justification, to UR for determination (if required).

HOW UR MONITORING EXPECTATIONS HAVE BEEN FULFILLED

As part of the AIR 22 submission for this development objective an updated programme was submitted to the UR. This programme has broadly been followed since the AIR22 submission although there are changes for the subsequent period.

A change control for Ballinrees was submitted in November 2022 with engagement with UR as required. The formal change control was submitted via ORG ensuring wider stakeholder engagement including DWI. In addition there have further engagements with DWI through the ongoing Drinking Water Inspectorate/ NI Water Compliance meetings. All information relevant to support the Change Control including the background treatability information and supporting Business Cases have also been shared.

As supported by DWI, Annex A information was not submitted for Ballinrees as it was not a requirement as a Regulation 31 Notice was in place for MCPA and Taste & Odour exceedances which negated the need for Annex A documentation.

PROGRAMME

See Master DO Programme v0 dated 07/07/23.

KEY MILESTONES FOR DEVELOPMENT OBJECTIVE

Description Key PC21 FD DO Milestones	FD21 Annex T Milestone Target Date	Status Vs FD21 Target	Current Milestone Target Date	Status Vs Current Target	Commentary on Material Milestone Date Changes <u>AND / OR</u> Reasons for any material Delay
Completion of appraisal and update PC21 business case	Jan 21	Superseded		N/A	As highlighted in AIR22 it was no longer NI Waters intention to complete Change Controls/ Business Cases for NI Water Alpha sites within the timescales originally envisaged as these have now been prioritised in conjunction with all WTWs in relation to the overall
Completion of regulatory Change Control process	Apr 21	Superseded		N/A	

					treatability pilot programme.
Annual Engagement with UR as part of AIR Return			Annually	On Target	
On-Going Engagement with Stakeholders including DWI			On-Going	On Target	
Ballinrees - Pilot Study			Feb 22	Complete	
Develop and submit (to the UR) an updated programme for the delivery of this objective			June/ July 22	Complete	As part of the AIR 22 submission for this development objective an updated programme was submitted to the UR.
Ballinrees - Submit appropriate Annex A documentation to DWI.			Aug 22	N/A	Annex A information was not submitted for Ballinrees as it was not a requirement as a Reg 31 Notice was in place for MCPA & taste & Odour exceedances, negating the need for further Annex A documentation.
Ballinrees – Submit Change Control and engage with stakeholders on proposals.			Aug 22	Complete	A Change Control with subsequent engagement was submitted in November 2022.
Dunore & Castorbay – Pilot Studies			Jan 24	Delayed	The treatability study for Dunore was originally planned for 2023 but now planned for

					2024. This is due to planned works on the site in 2023 which would interfere with the treatability study.
Dunore & Castorbay – Develop Business Cases as appropriate to inform Mid-Term Review update and engage with Stakeholders on Proposals			Jun 24	Delayed	On review of overall Treatability and Funding priorities NI Water do not intend to seek funding for these sites in PC21 and business cases will be developed to inform PC27 submission in Jan 26
Dunore & Castorbay - Submit appropriate Annex A documentation to DWI.			Jun 24	Delayed	As above, although Annex A documentation will be submitted to DWI as appropriate this will be developed to inform the PC27 submission in Jan 26
Moyola – Pilot Study			Jul 24	On Target	The treatability study for this site has been brought forward in substitute of Foffany treatability study as deemed a higher priority.
Moyola – Develop Business Case			Apr 25	On Target	

as appropriate to inform PC27 Submission					
KEY MILESTONES FOR SOLUTION INVESTMENT					
NI Water A1 options and business case complete	Apr 22	Superseded		N/A	As highlighted in AIR22 it was no longer NI Waters intention to complete Change Controls/ Business Cases for NI Water Alpha sites within the timescales originally envisaged as these have now been prioritised in conjunction with all WTWs in relation to the overall treatability pilot programme.
NI Water cost & programme understood and construction start	Apr 23	Superseded		N/A	
Beneficial Use	Mar 25	Superseded		N/A	
Ballinrees Upgrade - Commencement			Mar 23	Complete	
EXPENDITURE					
FD21 Annex T Estimated Total Cost of DO (2018/19 prices)	Forecast Cost of DO (Nominal prices)		Commentary on Material Total Cost Changes for DO		
£0.00m	£5.757m		The updated costs reflect the costs of the large scale Treatability Pilots used at the sites. These large-scale pilots have the ability to replicate numerous issues and risks at WTWs and establish the optimum solutions to resolve. It should be noted an estimate of £2m has been used for pilot studies at Dunore & Moyola		

PC21 FD Estimated Cost of Solution (2018/19 prices)	Forecast Cost of Solution (Nominal prices)	Commentary on Material Solution Cost Changes
£7.41m	£18.632m	This reflects the latest estimated cost of the upgrade of Ballinrees WTW required to satisfy the Reg 31 Notice in place for MCPA and Taste & Odour exceedances. (Project no: JA341,111,112, 181, 191)
ACTIVITY COMPLETED TO DATE AND OUTCOMES TO DATE (MARCH 2023)		
As part of the AIR 22 submission for this development objective an updated programme was submitted to the UR. This programme has broadly been followed since the AIR22 submission although there are changes for the subsequent period.		
A change control for Ballinrees was submitted in November 2022 with engagement with UR as required. The formal change control was submitted via ORG ensuring wider stakeholder engagement including DWI. In addition there have further engagements with DWI through the ongoing Drinking Water Inspectorate/ NI Water Compliance meetings. All information relevant to support the Change Control including the background treatability information and supporting Business Cases have also been shared.		
As supported by DWI, Annex A information was not submitted for Ballinrees as it was not a requirement as a Regulation 31 Notice was in place for MCPA and Taste & Odour exceedances which negated the need for Annex A documentation.		
It should be noted the Change Control for Ballinrees has been approved by ORG.		
PLANNED NEXT STEPS FOR DELIVERY		
As detailed in the key milestones the next steps involve delivering the pilot studies for the three remaining Alpha sites. It is anticipated that pilots for both Castor Bay and Moyola will be carried out in 23/24 with Dunore Point in 24/25. The outputs of these will then inform the long-term solution for the sites.		
As previously highlighted on review of overall Treatability and Funding priorities NI Water do not intend to seek funding for these sites in PC21 and business cases will be developed to inform the PC27 submission for which the final submission is due in Jan 26. As part of the submission Annex A documentation will be submitted to DWI as appropriate.		
PROPOSED MAINTENANCE EXPENDITURE / ADDITIONAL OPEX from CAPEX		
N/A		
IMPACT OF SCOPE / PROGRAMME CHANGES ON CAPITAL DELIVERY / OUTPUTS PROGRAMME		
There was no defined capital delivery programme linked to this development output following the Final Determination.		
IMPACTS ON CAPITAL OUTPUTS PROGRAMME LINKED TO TABLES 40, 40a & 40b		
Links to Tables Completed	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Comments		
RISKS & ISSUES ASSOCIATED WITH THIS DEVELOPMENT OBJECTIVE		
If the Development Objective isn't delivered the risks include: <ul style="list-style-type: none"> • Lack of future funding for NI Water Alpha WTWs • Increased risk of Water Quality Failures & Associated Customer Complaints • Increased risk of Interruptions to Supply 		

WIDER BENEFITS OF THIS DEVELOPMENT OBJECTIVE
Identify relevant funding for NI Water Alpha WTWs to ensure: <ul style="list-style-type: none"> Regulatory Water Quality Standards can be achieved into the future. Ensure security of supply
LINKS WITH OTHER DEVELOPMENT OBJECTIVES
There are no linkages with this development objective to any other development objectives.

Development Objective – Expenditure Summary

Table DO1 Expenditure on Development Objective (Nominal Prices)


Category	Spend to End March 2023 (£m)	Anticipated Future Spend (£m)	Anticipated Total DO Spend (£m)	Comment/Project Code
<i>Civil</i>				
<i>M&E</i>				
<i>Materials / Equipment</i>				
<i>NIE</i>				
<i>Lands</i>				
<i>Site Investigation</i>				
<i>Consultancy</i>				
<i>Pilot Studies</i>	3.147	2.610	5.757	JL795, 112, 191 JG095, 111 JI280, 111 £2m estimate for pilot studies at Dunore & Moyola
Totals	£3.147	£2.610	£5.757	
PC21 Projected Spend on Development Objective			£5.757	

DEVELOPMENT OBJECTIVE [DO]		
Ref	Development Objective	Sub-Programme
04	DWD Recast & Emerging Issues Study	04z
GOVERNANCE		
Directorate	SRO	Project Lead
AD		
REASON DEVELOPMENT OBJECTIVE IS NECESSARY		
<p>In February 2018, the European Commission adopted a proposal for a revised (recast) of Drinking Water Directive (DWD) (98/83/EC) to improve the quality of drinking water and provide greater access and information to citizens. This has yet to be formally adopted by the EU and, subsequent to this, by UK legislation. However there will be implications for NI Water's operating model should it be adopted and a study is required to evaluate the impact of this legislation.</p>		
DEVELOPMENT OBJECTIVE TO CONFIRM SOLUTION SPEND IN PC21 &/or PC27		
PC21 only <input type="checkbox"/>	PC27 only <input checked="" type="checkbox"/>	PC21 and PC27 <input type="checkbox"/>
PROJECT SCOPE		
<p>A review of the current proposal for a "Directive of the European Parliament and of the Council on the quality of water intended for human consumption (recast)" to ascertain future impacts and opportunities should the recast be formally adopted. Also to review emerging issues such as antimicrobial resistance and microplastics.</p> <p>No change to scope.</p>		
COMMENTARY ON MATERIAL CHANGES TO SCOPE		
N/A		
PROJECT OUTCOMES		
<p>Allow assessment of potential future funding need.</p> <p>Additional Detail to the above outcome is: A key deliverable will be a report to estimate the capital and operational investment requirements for each new measure, plus the requirement for capture and analysis of sampling data.</p> <p>No change to PC21 FD project outcomes.</p>		
COMMENTARY ON MATERIAL CHANGES TO PROJECT OUTCOMES		
N/A		
UR MONITORING EXPECTATIONS		
<p>Progress on the delivery of this objective will be monitored and reported on through the annual cost and performance report process as a minimum. In addition, the UR expects NI Water to:</p> <ul style="list-style-type: none"> Develop and submit a programme for delivery based on the transposition and implementation requirements. Engage and seek DWI support for the proposals through ongoing engagement. Engage with UR staff on the timing of additional engagement, reviews and the determination of any additional work which will flow from the successful completion of the development stages. 		


HOW UR MONITORING EXPECTATIONS HAVE BEEN FULFILLED

- Develop and submit a programme for delivery based on the transposition and implementation requirements.**
 No decision has been made on the transposition of the DW Recast Directive into new Drinking Water Regulations in Northern Ireland therefore a programme for delivery cannot be developed at this stage. This will be a Ministerial (NI Executive) decision.
- Engage and seek DWI support for the proposals through ongoing engagement.**
 Ongoing engagement is in place with the DWI. Updates on the transposition of the DW Recast Directive into new Drinking Water Regulations in Northern Ireland or the development of new Drinking Water Regulations in Northern Ireland aligned to the Recast Directive are provided to NI Water by the DWI through the following DWI/NIW meetings:

 - DWI/NIW Compliance Programmes Review meeting – see minutes of meeting 26/01/2023.



DWI NIW
Compliance Program
 - DWI/NIW Asset Delivery Directorate Triannual Meeting – see minutes of meeting 20/02/2023.



DWI NIW ADD
Triannual Meeting -2023
- Engage with UR staff on the timing of additional engagement, reviews and the determination of any additional work which will flow from the successful completion of the development stages.**
 N/A until there is a decision on the requirement for transposition into new Drinking Water Regulations in Northern Ireland or that new Drinking Water Regulations, aligned to the Recast Directive, will be issued.

PROGRAMME

See Master DO Programme v0 dated 07/07/23.

KEY MILESTONES FOR DEVELOPMENT OBJECTIVE

Description Key PC21 FD DO Milestones	FD21 Annex T Milestone Target Date	Status Vs FD21 Target	Current Milestone Target Date	Status Vs Current Target	Commentary on Material Milestone Date Changes <i>AND / OR</i> Reasons for any material Delay
Unable to quantify milestones until such times that the DWD Recast is adopted into UK legislation (or otherwise)	Blank	Blank	N/A	N/A	Original milestone replaced by individual milestones below.
Submission of	N/A	N/A	N/A	N/A	AIR22 had Jun22.

programme to UR					Individual programme superseded by Master DO Programme
Provide update in 2022 Annual Information Return	N/A	N/A	AIR 22	Complete	For evidence see AIR22 (Table 47, Section 4 commentary)
Provide update in 2023 Annual Information Return	N/A	N/A	AIR23	On Target	N/A
Provide update in 2024 Annual Information return	N/A	N/A	AIR 24	On Target	To be completed in 2024 in line with 2024 Annual Information return
KEY MILESTONES FOR SOLUTION INVESTMENT					
Unable to quantify milestones until such times that the DWD Recast is adopted into UK legislation (or otherwise)	Blank	Blank	N/A	N/A	N/A
EXPENDITURE [See Also Table DO1 below]					
FD21 Annex T Estimated Total Cost of DO (2018/19 prices)	Forecast Cost of DO (Nominal prices)		Commentary on Material Total Cost Changes for DO		
£0.283m	£0.32m		Extent of need not yet known and cannot be predicted		
PC21 FD Estimated Cost of Solution (2018/19 prices)	Forecast Cost of Solution (Nominal prices)		Commentary on Material Solution Cost Changes		
TBC	TBC		Any solution is likely for PC27 implementation at the earliest.		

ACTIVITY COMPLETED TO DATE AND OUTCOMES TO DATE (MARCH 2023)**Background**

- On 1 February 2018, the European Commission published a proposal for a recast of the Directive on the quality of water intended for human consumption (the Drinking Water Directive).
- On 16 December 2020, the European Parliament formally adopted the revised Drinking Water Directive. The directive came into force on 12 January 2021. Member States have two years to transpose it into national legislation, by January 2023. Transposition includes implementation timescales, where appropriate.

Key features of the revised Directive are:

- Reinforced drinking water quality standards, some of which are more stringent than WHO recommendations.
- Tackling emerging pollutants, such as endocrine disruptors and PFAS, as well as microplastics.
- A preventive approach favouring actions to reduce pollution at source by introducing the DWSP risk-based approach.
- Measures to ensure better access to water, particularly for vulnerable and marginalised groups.
- Measures to promote tap water, including in public spaces and restaurants, to reduce (plastic) bottle consumption.
- Harmonisation of the quality standards for materials and products in contact with water, including a reinforcement of the limit value for lead.
- Measures to reduce water leakages and to increase transparency of the sector.

Brexit / EU Exit – implications to transposition of the EU Drinking Water Directive

- The UK left the EU on 31 January 2020.
- The transition period, during which nothing changed, ended on 31 December 2020.
- The rules governing the new relationship between the EU and UK took effect on 1 January 2021.
- The Drinking Water Directive Recast came into effect on 12 January 2021, after the UK had left the EU.

Devolved Administrations

- Defra has made no decision on whether the Drinking Water Directive Recast changes will be implemented in the UK (England & Wales) through revised drinking water regulations.
 - Defra may determine to implement the regulatory changes either in whole or partially (e.g. drinking water standards only)
 - There is no pressure to meet EU timeframe for transposition to revise Drinking Water Regulations.
- **Update May 2023**
A Drinking Water Quality - Advisory Standards Board is to be set up. The Standards Board will use science and evidence to make recommendations to Ministers for future updates to standards where there are new and emerging contaminants, updated toxicological data and other areas where standards may be improved in order to protect public health and improve confidence in drinking water. The Standards Board will operate in a 5 yearly legislative review cycle.
- The Scottish Government have determined to remain aligned to EU Regulations
 - Scotland is working towards new Public Water Supply Regulations to be in place for January 2023.

- **Update May 2023**
New Public Water Supply Regulations in Scotland came into force on 1 January 2023 [The Public Water Supplies (Scotland) Amendment Regulations 2022].
- Northern Ireland – Ireland / Northern Ireland Protocol - Northern Ireland will remain aligned to a limited set of rules related to the EU's Single Market.
 - No decision has been made on whether NI will transpose the Drinking Water Directive in whole or part into Regulations.
- **Update May 2023**
There is no change to this position.

The Protocol potentially has implications for potable water used in food production and the trade of goods on the single market – i.e. water used for food production will need to comply with EU legislation. Food Standards regulations may therefore require that the water quality standards of the EU Drinking water Directive are transposed into new Drinking Water Regulations in Northern Ireland. If the protocol is withdrawn then the requirement for alignment to the set of rules related to the EU's Single Market and therefore Food Standards Regulations would no longer apply and as such there would no longer be a requirement to transpose DW directive.

PLANNED NEXT STEPS FOR DELIVERY

Northern Ireland - Next steps & progress

To date no decision has been made on whether Northern Ireland will transpose the Drinking Water Directive Recast in whole or part into Regulations. The DWI have met on a number of occasions with DAERA Policy to consider Transposition of the drinking water quality aspects of EU Drinking Water Directive Recast in line with the Protocol and Food Standards requirements. The DWI have provided a briefing note to the DEARA Minister and have noted that they have provided a submission to the DAERA Minister in May 2022, noting that they are working on the water quality aspects of the Recast directive.

The DWI have provided updates on their work to date to NI Water through routine DWI/NIW regulatory meetings, thereby facilitating a close watching brief by NI Water on the potential for transposition or new drinking water regulations in line with the Recast Directive. An NI Water workshop with the DWI was held on 13 June 2022.

The timeline for implementation of new drinking water regulations may not align with the business planning PC cycle and as such any increase in expenditure that may result will have to be incorporated into NI Water budgets outside of the current PC21 period. NI Water have noted to the DWI that changes in relation to transposition of the recast directive or new drinking water regulations will need to be factored into the PC27 Determination.

NI Water has undertaken an initial review of the potential water quality parameter and monitoring changes to meet the requirements of the Drinking Water Directive Recast in respect of regulatory and operational sampling and analysis including:

- New parameters
- Revised PCVs
- Revised sampling frequencies

See next section and Annex 1.

The DWR team made a presentation to NI Water EC in November 2021 on the initial assessment carried out on the DWD Recast.

NI Water have liaised with Scottish Water on the work they have undertaken on the transposition into new Public Supply Regulations in Scotland. A meeting was held via MS Teams on 10 May 2022. Further liaison will be undertaken as necessary as Scottish Water as we continue to review and assess the potential impacts of the regulatory changes to

parameters, monitoring frequency and analysis through new drinking water regulations. Surveys are being undertaken for a number of the potential new parameters to understand the risk for compliance against the regulatory limit as set in the Recast Directive. This will help to feed into any work required for this development objective to assess strategic cost estimates should there be a decision to issue new drinking water regulations in line with the Recast Directive.

Overview of changes / impacts – parameters and monitoring requirements

A number of new parameters have been included e.g. PFAS & watch list emerging substances of concern such as endocrine disruptors, microplastics. This will have implications for new analysis method development and laboratory capacity requirements.

a. New parameters

Bisphenol A	Microcystin-LR	Nonylphenol (watchlist only)
Chlorate	Sum of PFAs	Beta-estradiol (watchlist only)
Chlorite	Somatic coliphages	
HAA	Uranium	

Nonylphenol and beta-estradiol are watch list parameters and not regulatory compliance parameters. The wording is that they “should be added to the watch list to be established by the Commission pursuant to this Directive”.

b. Changes to parameters / monitoring requirements

- Changes to minimum frequency of sampling and analysis for some parameters, which will result in an associate increase in costs.
- New parameters will require new instrumentation and method development, which will result in an associate increase in costs.
- Lead – the regulatory standard will remain at 10ug/l until 2036 and then reduce to 5ug/l. There will be a requirement to work towards the reduced standard over this period. This will require increased capital expenditure in lead pipe replacements and increased operational expenditure for Orthophosphoric acid dosing for plumbosolvency control. Policy changes in respect of dealing with the customer side lead pipe would be required as compliance for lead in drinking water is at the point of use.
- Turbidity at WTW – new operational monitoring requirement. May require capital expenditure for accredited/validated online turbidity monitoring for final water going into supply. There will also be an ongoing maintenance cost and cost associated with instrumentation replacement schedules.
- Chlorate and chlorite – potential for capital expenditure for additional storage tanks and improved management of the age of sodium hypochlorite to reduce the risk for formation of these compounds through hypochlorite degradation.
- More emphasis on risk assessment approach (DWSP – source to tap risk management). This may provide an opportunity to reduce frequency of sampling and analysis for some parameters based on actual results and risk assessments.

It is agreed that the cost, spend on the DO should remain. This is to ensure that if there is a decision to transpose the Recast DWD, or to issue new Drinking Water Regulations that align with the Recast DWD water quality aspects, that this money would be available to carry out strategic cost estimates for:

- Cost impacts associated with sampling, monitoring, accreditation and reporting.
- Capital cost impacts on the laboratory.
- Capital cost impact of new operational monitoring requirement.

<ul style="list-style-type: none"> Capital cost impacts associated with achieving compliance with new and revised regulatory standards. 			
PROPOSED MAINTENANCE EXPENDITURE / ADDITIONAL OPEX from CAPEX			
N/A			
IMPACT OF SCOPE / PROGRAMME CHANGES ON CAPITAL DELIVERY / OUTPUTS PROGRAMME			
N/A			
Extent of need not yet known and cannot be predicted. Any solution is likely for PC27 implementation at the earliest.			
IMPACTS ON CAPITAL OUTPUTS PROGRAMME LINKED TO TABLES 40, 40a & 40b			
Links to Tables Completed	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	This DO has no link to the PC21 plan outputs.
RISKS & ISSUES ASSOCIATED WITH THIS DEVELOPMENT OBJECTIVE			
To date no decision has been made on whether Northern Ireland will transpose the Drinking Water Directive Recast in whole or part into new Drinking Water Regulations. Due to this it is not possible to move any further forward with this Development Objective. There is a risk that the required capital costs to meet the requirements of new drinking water regulations are not captured for PC27 planning.			
WIDER BENEFITS OF THIS DEVELOPMENT OBJECTIVE			
New Drinking Water Regulations in Northern Ireland aligned to the Drinking Water Recast would ensure that drinking water standards in Northern Ireland would be comparable to those in the EU Member States and in Scotland.			
LINKAGE TO OTHER DEVELOPMENT OBJECTIVES			
There are no current links to any other Development Objectives.			

Development Objective – Expenditure Summary

There has been no expenditure to date.

Table DO1 Expenditure on Development Objective (Nominal cost base)

Category	Spend to End March 2023 (£m)	Anticipated Future Spend (£m)	Anticipated Total DO Spend (£m)	Comment
Consultancy	None	£0.32m	£0.32m	
Totals	£0	£0.32m	£0.32m	
PC21 Projected Spend on Development Objective			£0.32m	

Annex 1 - Parameter changes analysis – assumptions & risks

Parameter	2017	Recast	Units of Measurement	Comment on parameter change	Risk / Action
	Concentration or Value (maximum)	Concentration or Value (maximum)			
Enterococci	0	0	number/100ml	Change to frequency of monitoring (increased to frequency of coliforms) - core parameter - must always be monitored at the minimum frequency.	Increased numbers of samples – sampling & analysis resource impacts.
Escherichia coli (E. coli)	0	0	number/100ml	No change - core parameter - must always be monitored at the minimum frequency.	
Total coliforms	0	-	number/100ml	No change - core parameter - must always be monitored at the minimum frequency.	
Antimony	5	10	µ g/l	Increase in PCV (Note WHO recommended increase to 20ug/l).	Method would require adjustment to account for revised PCV.
Bisphenol A		2.5	ug/l	New parameter - endocrine disrupting compound.	Method development. – in house analysis would require new instrumentation and method development along with additional analytical resource. Expected to be low risk in drinking water. Survey being undertaken across all WTW sites to determine potential risk in raw waters.

Parameter	2017	Recast	Units of Measurement	Comment on parameter change	Risk / Action
	Concentration or Value (maximum)	Concentration or Value (maximum)			
Chlorate		0.25	mg/l	<p>New parameters</p> <p>Chlorate & Chlorite are predominantly disinfection by-products from hypochlorite degradation.</p> <p>Action may be required to reduce risk of formation to meet compliance - chemical procurement (chemical strength, volume) and storage (e.g. temperature control, prevention of exposure to light and minimisation of storage time).</p> <p>Note: WHO proposed a value of 0.7ug/l (3 x greater than level in the recast).</p> <p>To be considered further: - The wording in the recast DWD states "A parametric value of 0.70 mg/l shall be applied where a disinfection method that generates chlorate, in particular chlorine dioxide, is used for disinfection of water intended for human consumption." As hypochlorite-based disinfection generates chlorate will the DWI seek to</p>	<p>Method development – in house analysis would require new instrumentation or changes to current instrumentation and method development along with additional analytical resource.</p> <p>Assessment of risk from current procurement and storage of sodium hypochlorite will be required.</p> <p>Survey being undertaken across all WTW sites to determine potential risk / levels of chlorate & chlorite.</p>
Chlorite		0.25	mg/l		

Parameter	2017	Recast	Units of Measurement	Comment on parameter change	Risk / Action
	Concentration or Value (maximum)	Concentration or Value (maximum)			
				introduce the standard at 250µg/l or will there be a relaxation on this for sites where we use sodium hypochlorite or on-site electrolytic chlorination.	
Chromium	50	25	µ g/l	The parametric value of 25 µg/l shall be met, at the latest, by 12 January 2036. The parametric value for chromium until that date shall be 50 µg/l.	Method would require adjustment to account for revised PCV. Expected to be low risk to meet revised standard. Potential for leaching from customers internal fittings. Method would require adjustment to account for revised PCV.

Parameter	2017	Recast	Units of Measurement	Comment on parameter change	Risk / Action
	Concentration or Value (maximum)	Concentration or Value (maximum)			
Haloacetic acids (HAAs)	-	60	ug/l	New parameter - disinfection by-product.	Method development – in house analysis would require new instrumentation or changes to current instrumentation and method development along with additional analytical resource. Survey to be undertaken across all sites to determine potential risk. Assessment of risk – PC21 pilot plant treatability studies for DBPs, including HAAs to inform PC27.
Lead	10	5	µ g/l	The parametric value of 5 µg/l shall be met, at the latest, by 12 January 2036. The parametric value for lead until that date shall be 10 µg/l. There will be a requirement to work towards the reduced standard over this period.	Compliance will still be at the customer tap – risk from customer side lead. Expected decrease in compliance with the PCV. Method would require adjustment to account for revised PCV.
Microcystin-LR	-	1	ug/l	New parameter. This parameter shall be measured only in the event of potential blooms in source water.	Method development. – in house analysis would require new instrumentation and method development along with additional analytical resource. Expected to be low risk to meet PCV.

Parameter	2017	Recast	Units of Measurement	Comment on parameter change	Risk / Action
	Concentration or Value (maximum)	Concentration or Value (maximum)			
					Note: we have been measuring this operationally at some sites with algae risk in the raw water.
PFAS Total	-	0.5	ug/l	New parameter. 'PFAS Total' means the totality of per- and polyfluoroalkyl substances. This parametric value shall only apply once technical guidelines for monitoring this parameter are developed in accordance with Article 13(7) i.e. By 12 January 2024, the Commission shall establish technical guidelines. Member States may then decide to use either one or both of the parameters 'PFAS Total' or 'Sum of PFAS'. Note: We have undertaken 2 annual raw water surveys to assess risk - all low-level risk.	Industry method development required – very few labs currently with accreditation for the range of PFAS compounds to be tested. – in house analysis would require new instrumentation and method development along with additional analytical resource. Unknown what the frequency of monitoring required will be – risk based or set frequency? - Annual surveys being undertaken to assess risk based on DWI guidance and Recast Directive parameters – all results show low risk. Approach agreed with DWI and results shared with DWI.
Sum of PFAS	-	0.1	ug/l	New parameter. 'Sum of PFAS' means the sum of per- and polyfluoroalkyl substances considered a concern as regards water intended for human consumption listed in point 3 of Part B of Annex III. This is a subset of 'PFAS Total'	

Parameter	2017	Recast	Units of Measurement	Comment on parameter change	Risk / Action
	Concentration or Value (maximum)	Concentration or Value (maximum)			
				substances. Note – above PFAS Total – may only be required to measure PFAS Total or Sum of PFAS.	
Turbidity (WTW) - operational monitoring and none to exceed 1 NTU	1	0.3NTU in 95% of samples and none to exceed 1 NTU	NTU	Change in monitoring requirement. For WTWs with >10,000m ³ per day into supply continuous sampling required e.g. online monitoring. Capital expenditure requirement - Will require turbidity monitor on water going into supply and requirements for calibration / accreditation / validation. Note: would be expected that a daily sample for laboratory analysis will still be required.	Capital expenditure – accredited/validated online turbidity monitoring post CWT (water into supply). Will apply based on volume of water into supply (i.e. sites currently on daily monitoring).
Turbidity (Customer tap)	4	Acceptable to consumers and no abnormal change	NTU	Change to PCV - This potentially has implications for customer complaints of discoloured water. Note: national requirements may still require a parametric value for analysis purposes.	Need to understand what the trigger will be e.g. number / %age of complaints per population received. Will there still be a national PCV?
Selenium	10	20	µg/l	Increase in PCV (Note WHO recommended increase to 40ug/l).	Method would require adjustment to account for revised PCV.

Parameter	2017	Recast	Units of Measurement	Comment on parameter change	Risk / Action
	Concentration or Value (maximum)	Concentration or Value (maximum)			
Uranium		30	ug/l	New parameter.	Expected to be low risk to meet PCV.
Colour	20	Acceptable to consumers and no abnormal change	mg/l Pt/Co	Change to PCV - This potentially has implications for customer complaints of discoloured water . Note: national requirements may still require a parametric value for analysis / monitoring purposes.	Need to understand what the trigger will be e.g. number / %age of complaints per population received. Will there still be a national PCV?
Turbidity (WTW) - operational monitoring and none to exceed 1 NTU	1	0.3NTU in 95% of samples and none to exceed 1 NTU	NTU	Change in monitoring requirement. For WTWs with >10,000m ³ per day into supply continuous sampling required e.g. online monitoring. Capital expenditure requirement - Will require turbidity monitor on water going into supply and requirements for calibration / accreditation / validation. Note: would be expected that a daily sample for laboratory analysis will still be required.	Capital expenditure – accredited/validated online turbidity monitoring post CWT (water into supply). Will apply based on volume of water into supply (i.e. sites currently on daily monitoring).
Turbidity (Customer tap)	4	Acceptable to consumers and no abnormal	NTU	Change to PCV - This potentially has implications for customer complaints of discoloured water.	Need to understand what the trigger will be e.g. number / %age of complaints per population received.

Parameter	2017	Recast	Units of Measurement	Comment on parameter change	Risk / Action
	Concentration or Value (maximum)	Concentration or Value (maximum)			
		change		Note: national requirements may still require a parametric value for analysis purposes.	Will there still be a national PCV?
Oxidisability		5	mg/l O2	New parameter. This parameter need not be measured if the parameter TOC is analysed. Note: we analyse TOC currently so unlikely to be required.	No action expected.
Colony count 37o C	No abnormal change	-		No longer in the DW directive - could be maintained in Regulations as a National Requirement	Will there still be a national PCV?
Tetrachloromethane	3	-	µ g/l	No longer in the DW directive - could be maintained in Regulations as a National Requirement	Will there still be a national PCV?
Legionella	-	< 1 000	CFU/l	This potentially could be covered by current monitoring programmes (e.g. HSE NI).	Need to understand who would be required to undertake this – can it be via HSE as current.
Somatic coliphages	-	50 (for raw water)	Plaque Forming Units (PFU)/100 ml	New parameter. This parameter shall be measured if the risk assessment indicates that it is appropriate to do so. If it is found in raw water at concentrations > 50 PFU/100 ml, it should be analysed after steps of the treatment process	Method development if risk assessment shows this is a risk. Increased laboratory resource if analysis required - No known capability for this testing currently available in UK water industry. PC27 treatability – assessment of log removal (similar to

Parameter	2017 Concentration or Value (maximum)	Recast Concentration or Value (maximum)	Units of Measurement	Comment on parameter change	Risk / Action
				in order to determine log removal by the barriers in place and to assess whether the risk of a breakthrough of pathogenic viruses is sufficiently under control.	assessment for Crypto risk in treatability studies).

DEVELOPMENT OBJECTIVE [DO]		
Ref	Development Objective	Sub-Programme
05	Refresh of DG2 Register	08z
GOVERNANCE		
Directorate	SRO	Project Lead
AD		
REASON DEVELOPMENT OBJECTIVE IS NECESSARY		
<p>A refresh of the NI Water DG2 Register is required to increase confidence in the process used to identify properties experiencing low pressure below the 15m minimum level of service. This is evidenced by the fact that in recent years a significant number of DG2 properties were added to the register. This is mainly due to properties at a similar elevation to properties on the DG2 Register, which is only realised by pressure logging and detailed analysis. For example in Year 4 (2018/19) 184 properties were added to the register whilst 176 were removed from the register, which is a net increase of 8 properties. As such, NI Water considers it is necessary to undertake a refresh of the register, which will use all available pressure information including model outputs to target pressure logging in the highest priority low pressure areas.</p> <p>By AIR23, the DG2 Register has now been fully refreshed via detailed pressure logging and analysis.</p>		
DEVELOPMENT OBJECTIVE TO CONFIRM SOLUTION SPEND IN PC21 &/or PC27		
PC21 only <input type="checkbox"/>	PC27 only <input type="checkbox"/>	PC21 and PC27 <input checked="" type="checkbox"/>
PROJECT SCOPE		
<p>The refresh of the DG2 Register will require a dedicated DG2 team who will use all available GIS data, logged pressures and models to prioritise areas for DG2 logging. This will allow properties to be added and removed from the register.</p> <p>The highest priority DG2 properties will be analysed on the model to develop optimum solutions. Lowest TOTEX solutions will be identified which may include operational solutions such as rezoning the low pressure properties onto a higher pressure supply or increasing the outlet settings of PRV/WPS. Capex solutions will include upsizing water mains or new/upgraded water booster stations. These network improvement schemes will be prioritised for construction.</p> <p>We need to continue with post-construction pressure logging as part of the DG2 Investigation Report to confirm the removal of properties from the DG2 Register.</p> <p>The estimated Development Objective costs from the business plan will be:</p> <p><u>1953 - Studies to Inform Water Infra</u> (total of £6.6m for modelling studies) 1 No. FTE (Full Time Equivalent) resource over the 6 years of PC21 to update and maintain the DG2 Register (£300k) Purchase stock of pressure loggers (£38k) 1 No. FTE to compile potential schemes from the model build programme, and verify schemes for construction through the Water Mains Rehabilitation (£300k)</p> <p><u>SP00 Cap Salaries:</u> 2 FTE technician resources to undertake pressure logging for 2 years of PC21 (£120k)</p> <p>The 'Solution Investment' costs estimates for the two DG2 low pressure projects are:</p>		

1539 – DG2 Low Pressure (£8.18m) – Capex schemes comprising mains upsizing & booster WPS solutions.

2617 – Low Pressure Development Output (£1.92m) – Capex allowance for operational solutions (e.g. increasing outlet setting of PRV/WPS)

No change to scope.

It should be noted that the **scope of the Development Objective is limited to the refresh of the DG2 Register** which is now complete and suitable for use in developing solutions to resolve customer low pressures.

COMMENTARY ON MATERIAL CHANGES TO SCOPE

N/A

PROJECT OUTCOMES

- Proactive approach to maintaining the DG2 Register of low pressure properties
- Increased certainty and prioritised register of low pressure issues
- Resolving highest priority DG2 issues, with improved customer outcomes
- Efficiencies and savings associated with proactive approach and dedicated DG2 team

No change to PC21 FD project outcomes.

COMMENTARY ON MATERIAL CHANGES TO PROJECT OUTCOMES

N/A

UR MONITORING EXPECTATIONS

Progress on the delivery of this objective will be monitored and reported on through the annual cost and performance report process as a minimum. In addition the UR expects NI Water to:

- Develop and submit an updated programme for the delivery of this objective.
- Engage with UR staff on the timing of additional engagement, reviews and the determination of any outcomes flowing from the successful completion of the development stages. An update on results of the initial desktop studies and logging exercise as well as the implications that this has for the DG2 Register is likely to be required as part of the engagement process.
- Engage with UR staff on the revision of PC21 DG2 targets following completion of the DG2 Register 'refresh' if required.

HOW UR MONITORING EXPECTATIONS HAVE BEEN FULFILLED

AIR22 provided an update on the progress on each milestone.

The UR meeting on 19/12/22 confirmed the completion of the DG2 Refresh by the end of August 2022, which has increased the number of DG2 properties from 578 to 1,908. See attached slides.



DG2 Refresh

Summary_131222.pdf

The UR plans to meet NIW again at the end of August 2023 to review the impact the DG2 Refresh will have on the DG2 targets, which will be agreed during the Mid Term Review.

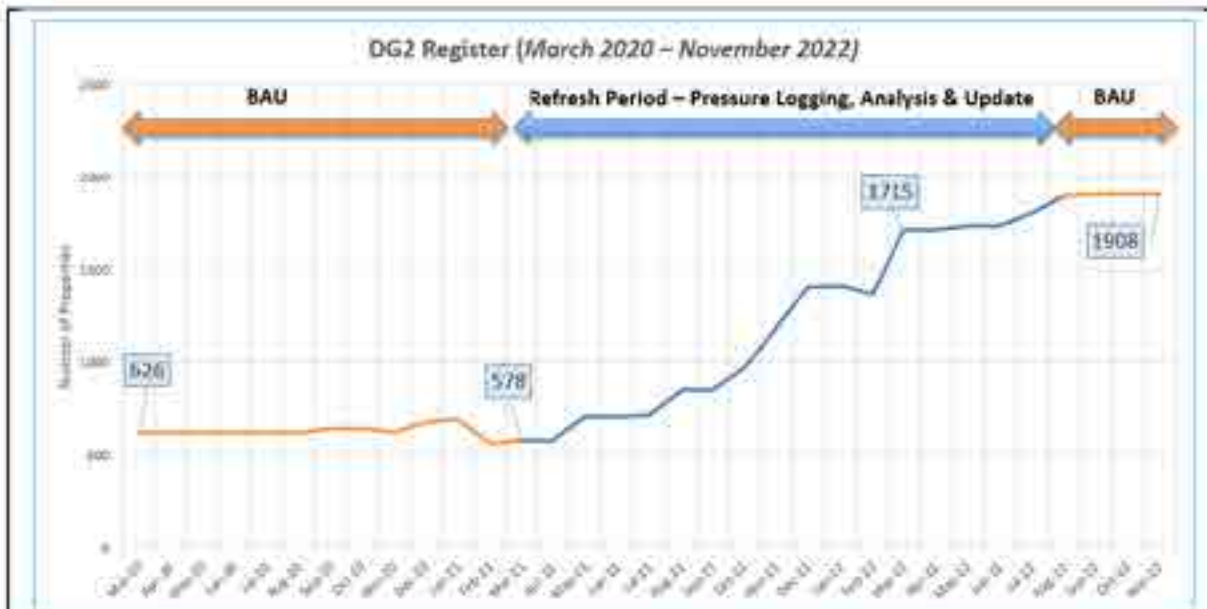
PROGRAMME

See Master DO Programme v0 dated 07/07/23.

KEY MILESTONES FOR DEVELOPMENT OBJECTIVE					
Description Key PC21 FD DO Milestones	FD21 Annex T Milestone Target Date	Status Vs FD21 Target	Current Milestone Target Date	Status Vs Current Target	Commentary on Material Milestone Date Changes <u>AND</u> / <u>OR</u> Reasons for any material Delay
Develop a desktop GIS layer of 'at risk' low pressure areas	Jun 20	Delayed	May 21	Complete	Completed May 21. Delayed as had to be done on a zone by zone basis to suit batches of pressure logging
Initial logging exercise to verify highest priority locations for DG2 removal schemes	Dec 20	Complete	N/A	N/A	Completed Dec 20 on target
Develop new dedicated DG2 team	Sep 21	Complete	N/A	N/A	Completed Oct 20 ahead of target
Complete refresh of DG2 Register	Mar 24	Complete	N/A	N/A	Completed Aug 22 well ahead of target
Develop and implement a process and resource to maintain the DG2 Register as BAU activity	N/A	N/A	Aug 22	Complete	Completed Aug 22 on target
Initial engagement with UR including programme, review of targets and future plans	N/A	N/A	Dec 22	Complete	Completed Dec 22 on target
Meet with UR to review and agree DG2 targets for remainder of PC21.	N/A	N/A	Aug 23	On target	N/A

The following two milestones are supplementary tasks that are outside the scope of the Development Objective to refresh the DG2 Register:					
Develop Power BI dashboard for monthly DG2 Reporting			Sep 22	Delayed	Delayed due to lack of internal resources, however outside scope of DO
For Mid-Term Review, consider alternatives to DG2 Register i.e. using permanent Pressure Monitoring Points (PMP) and customer contacts			Apr 24	Not started	Postponed to end of PC21 period when most PMP sites have been installed and we have researched approaches used by UK companies
KEY MILESTONES FOR SOLUTION INVESTMENT (note this section is relating to the implementation phase of the DG2 removal schemes which is outside the scope of the Development Objective to refresh the DG2 Register)					
Issue first batch of DG2 removal schemes to contractors	Mar 21	Delayed	May 21	Complete	Completed May 21
Develop further packages of DG2 removal schemes during remainder of PC21	N/A	N/A	N/A	N/A	Ongoing. See Work Packages below
Issue Work Package 2 of DG2 removal schemes to Capital Delivery team	N/A	N/A	Jan 22	Complete	Completed Mar 22
Develop a Preliminary Water Schemes GIS layer for all DG2 removal schemes	N/A	N/A	Mar 22	Complete	Completed Jun 22
Add workbank of schemes to Prelim Water Schemes GIS layer for costing	N/A	N/A	2023-27	Ongoing	Schemes have been drafted and will be added to Prelim Layer to suit agreed DG2 target, funding levels, and

					delivery team (WP4 schemes have been identified)
Review PC21 DG2 targets (estimated cost per DG2 removal)	N/A	N/A	2023-27	Ongoing	Cost per DG2 removal has been calculated for AIR23
For Mid-Term Review, estimate overall outturn cost per DG2 removal, funding levels and number of DG2 removals	N/A	N/A	Sep 23	On Target	Costs of DG2 removals and PC21 targets to be reviewed by UR in spring/summer '23 for MTR submission Sep 23
EXPENDITURE [See Also Table DO1 below]					
FD21 Annex T Estimated Total Cost of DO (2018/19 prices)		Forecast Cost of DO (Nominal prices)		Commentary on Material Total Cost Changes for DO	
£0.76m (2018/19)		£0.515m (nominal, 2022/23). Covers DG2 Refresh plus solution development		Actual cost was lower than estimated. Reasons include: <ul style="list-style-type: none"> • Less effort than anticipated • Update/maintenance of DG2 Register is being done in-house 	
PC21 FD Estimated Cost of Solution (2018/19 prices)		Forecast Cost of Solution (Nominal prices)		Commentary on Material Solution Cost Changes	
£10.1m		£10.1m		Cost of schemes issued up to WP3 is estimated at £6.0m. Further WP(s) TBC following UR's review for MTR. Retaining FD of £10.1m as best forecasted estimate at this stage and a more accurate forecast will be available after NIW meets the UR in Aug 23.	
ACTIVITY COMPLETED TO DATE AND OUTCOMES TO DATE (MARCH 2023)					
The refresh of the DG2 Register, and as such this Development Output is now fully complete. There has been a sharp and significant increase in the number of properties on the DG2 Register due to the refresh.					



The refresh has increased the Register from 578 (Mar '21) to 1,908 (Nov '22), which is an increase of 1,330 properties.

PLANNED NEXT STEPS FOR DELIVERY

NIW continues to engage with the UR regarding the DG2 targets for PC21. The UR is currently reviewing the impact this significant increase has on the PC21 target for DG2 removals and the funding levels during the remainder of PC21. The required funding and targets will be reviewed and agreed as part of the Mid Term Review.

NIW is proposing that this Development Objective (i.e. to refresh the DG2 Register) is closed down following the UR's review in spring/summer 2023.

Maintenance of the DG2 Register is now a Business As Usual activity, along with the development of Work Packages which will continue throughout the remainder of PC21 to suit the agreed targets, funding and delivery resource/programme.

PROPOSED MAINTENANCE EXPENDITURE / ADDITIONAL OPEX from CAPEX

Some additional OPEX funding will be needed to operate the new booster Water Pumping Stations (8no. to date), however for this small number the OPEX impact will be minimal. All the booster WPS have been assessed as the optimal solution after first considering rezoning and mains upsizing, so in these eight cases there is no alternative to pumping. Additional OPEX to maintain and operate other new assets such as new mains and PRVs will be negligible and should be offset by the replacement of older assets under these DG2 work packages.

IMPACT OF SCOPE / PROGRAMME CHANGES ON CAPITAL DELIVERY / OUTPUTS PROGRAMME

There have been no material changes to scope or programme. The refresh of the DG2 Register was completed in August 2022 and a workbank of schemes is available for the remainder of PC21 and into PC27. Therefore, there is no impact from this Development Objective on the delivery programme.

IMPACTS ON CAPITAL OUTPUTS PROGRAMME LINKED TO TABLES 40, 40a & 40b

Links to Tables Completed	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Various Capital and Ops Capital projects, primarily Capital project J1227.
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RISKS & ISSUES ASSOCIATED WITH THIS DEVELOPMENT OBJECTIVE
N/A. Development Objective is now complete.
WIDER BENEFITS OF THIS DEVELOPMENT OBJECTIVE
Proactive, planned, robust, efficient, and best value resolution of customer low pressure problems.
LINKAGE TO OTHER DEVELOPMENT OBJECTIVES
There is no linkage between this Development Objective "Refresh of DG2 Register" and any other Development Objectives.

Development Objective – Expenditure Summary

Table DO1 Expenditure on Development Objective (Nominal Prices)

Category	Spend to End March 2023 (£m)	Anticipated Future Spend (£m)	Anticipated Total DO Spend (£m)	Comment
Civil				
M&E				
Materials / Equipment				
NIE				
Lands				
Site Investigation				
Consultancy	0.515	0	0.515	J1193 "DG2 Register Refresh". Lower than estimated at FD (£0.76m)
Pilot Studies				
Add Others as necessary				
Totals	£0.515m	£0	£0.515m	
PC21 Projected Spend on Development Objective			£0.515m	

DEVELOPMENT OBJECTIVE [DO]		
Ref	Development Objective	Sub-Programme
06	Targeted Mains Renewals in High Leakage Areas	08z
GOVERNANCE		
Directorate	SRO	Project Lead
C&OD		
REASON DEVELOPMENT OBJECTIVE IS NECESSARY		
<p>Analysis of existing leakage levels are indicating that the projected leakage reduction targets are becoming increasingly difficult to achieve. The Natural of Rise (NRR) has increased over recent years and there is not clarity on whether it is as a result of ongoing deterioration of the distribution network, the impact of weather or even a combination of both.</p> <p>The PC21 projected CAPEX for mains renewals is £82.89m, which equates to 0.41% of the network per year. This projected capex for mains renewal is required to maintain stable serviceability across the network for customer contacts, unplanned supply interruptions, low water pressure and drinking water quality, however it does not include NRR as a driver. As such it does not address the risk associated with a non-stable network in relation to NRR.</p> <p>As achieving the leakage reduction target continues to prove challenging in PC15, NI Water is very keen to explore the use of targeted mains renewals as a method to have a more stable NRR. A £10m budget has been suggested for a mains renewal programme to assess the impact on addressing the NRR.</p> <p>A significant element of our bursts and leakage is on PVC and asbestos cement mains. NIW has 10,500 km of PVC and 1,200 km of asbestos cement mains which is an abnormally high proportion of these materials compared to other Water UK companies. The NI Water PVC mains have an average age of 42 years and the asbestos mains have an average age of 61 years.</p>		
DEVELOPMENT OBJECTIVE TO CONFIRM SOLUTION SPEND IN PC21 &/or PC27		
PC21 only <input type="checkbox"/>	PC27 only <input type="checkbox"/>	PC21 and PC27 <input checked="" type="checkbox"/>
PROJECT SCOPE		
<p>A project will be required to develop a best practice approach and methodology for targeted mains renewal to address leakage issues as follows:</p> <ul style="list-style-type: none"> Utilise current work activity outputs undertaken as a part of the Leakage Programme to develop the best practice approach and methodology to target mains renewal to counter the NRR and leakage in targeted DMAs. Utilise guidance documents such as UKWIR's "The Impact of Burst-Driven Mains Renewals on Network Leakage Performance". Develop a programme of work for the renewal of specific mains in those targeted DMAs. Monitor the benefits to NRR and leakage, post renewal, as well as other non NRR and leakage benefits (financial and non-financial). Undertake an overall assessment of TOTEX benefits and payback periods for these completed mains renewals to help inform better long term planning decisions. Utilise this NRR mains renewal methodology, as a trial throughout the PC21 period, to understand whether such a programme of work has proven benefits that can be subsequently used as the basis for an enhanced programme in PC27. <p>The Development Objective costs will be a portion of the IPAC project 2576 – AD Asset</p>		

<p>Strategy Water Asset Performance Modelling. An allowance of £100k has been made for 'Update to WIMM' and an estimated £30k of this will be apportioned to developing an approach and methodology for Targeted Mains Renewals in High Leakage Areas.</p> <p>The 'Solution Investment' costs estimates are a £10m portion of the overall water mains rehabilitation costs within 2296 – Watermains Rehabilitation (total of £92.9m Business Plan).</p> <p>No change to scope.</p>					
COMMENTARY ON MATERIAL CHANGES TO SCOPE					
N/A					
PROJECT OUTCOMES					
<ul style="list-style-type: none"> • Help address the increasing NRR and achieve target leakage reductions • Reduce interruptions to supply, improve customer service delivery and reduce customer minutes lost whilst improving the reportable DG3 Interruptions to Supply figures <p>A key deliverable is a best practice methodology and a programme of work for the renewal of specific mains in targeted DMAs.</p>					
COMMENTARY ON MATERIAL CHANGES TO PROJECT OUTCOMES					
N/A					
UR MONITORING EXPECTATIONS					
<p>Progress on the delivery of this objective will be monitored and reported on through the annual cost and performance report process as a minimum. In addition the UR expects NI Water to:</p> <ul style="list-style-type: none"> • Develop and submit an updated programme for the delivery of this objective. • Engage with UR staff on the timing of additional engagement, reviews and the determination of any outcomes flowing from the successful completion of the development stages. Provision of a copy of the best practice approach/methodology and an update on how it has been applied to identify and prioritise mains renewals is likely to be required as part of the engagement process. • Engage with UR staff on the implications for PC21 Leakage targets if required. 					
HOW UR MONITORING EXPECTATIONS HAVE BEEN FULFILLED					
<p>Initial Audit was completed after the conclusion of PC21 year 1, in June 2022.</p> <p>Update presentation was provided to UR on 18th October 2022.</p>					
PROGRAMME					
See Master DO Programme v0 dated 07/07/23.					
KEY MILESTONES FOR DEVELOPMENT OBJECTIVE					
Description Key PC21 FD DO Milestones	FD21 Annex T Milestone Target Date	Status Vs FD21 Target	Current Milestone Target Date	Status Vs Current Target	Commentary on Material Milestone Date Changes <u>AND/</u> <u>OR</u> Reasons for any material Delay
Submit updated	N/A	N/A	Mar 27	On target	Programme updates are

program me to UR.					provided to the UR with each AIR return
Develop the best practice approach and methodology to target mains renewal to counter the NRR and leakage in targeted DMAs	Jun 20	N/A	Sep 22	Complete	<p>Outline approach developed to identify mains sections in three batches and issued to AD. Presented to the UR in Oct 22. Review by RPS determines that NIW approach is consistent with UKWIR guidance.</p> <p>NOTE - The original date proposed in Annex T (Jun 20) was unachievable as the FD was not available at this time. Therefore 'N/A' has been entered against Jun 20.</p>
Application of methodology as part of the overall update of WIMM, to develop work packages of water mains rehabilitation schemes for construction	Mar 21	N/A	Oct 23	Delayed	<p>Development of further work packages to be in line with NIW's outline approach, being consistent with UKWIR guidance, in consideration of RPS review recommendations and any post-benefits analysis undertaken. Update of WIIM to be linked with outcome of benefit analysis. Delay due to construction</p>

					<p>timelines.</p> <p>NOTE - The original date proposed in Annex T (Mar 21) was unachievable as the FD was not available at this time. Therefore 'N/A' has been entered against Mar 21.</p> <p>In AIR22 it was anticipated that this milestone would be completed by Sept 22, however delays in the construction timeline and the requirement for the DMAs to 'settle down' and post-construction benefits analysis has resulted in a forecast date of Oct 23</p>
KEY MILESTONES FOR SOLUTION INVESTMENT					
Issue first batch of Targeted Mains Renewals in High Leakage Areas' schemes (as part of update to WIMM) ready	Mar 21	N/A	Mar 22	Complete	<p>NOTE - The original date proposed in Annex T (Mar 21) was unachievable as the FD was only being made available and time was required to prepare the methodology and develop the work package of schemes. Therefore 'N/A'</p>

for issue to contractors.					has been entered against Mar 21. The first batch of schemes was issued to the Asset Delivery team for inclusion in a work package in Mar 22, and hence this milestone was completed in Mar 22.
Undertake benefits analysis and develop further packages of targeted mains renewals during remainder of PC21	N/A	N/A	Mar 27	On Target	Benefits analysis ongoing and to be progressed as packages within DMAs are completed. Further packages to be developed and to consider findings of any benefits analysis undertaken.
EXPENDITURE [See Also Table DO1 below]					
FD21 Annex T Estimated Total Cost of DO (2018/19 prices)		Forecast Cost of DO (Nominal prices)		Commentary on Material Total Cost Changes for DO	
£0.03m		£0.039m		Cost is negligible and estimated forecast includes RPI. Cost to date is approx. £0.005m for consultancy review of outline approach with minimal BAU resources being used to identify potential schemes. Remaining costs to undertake ongoing benefits analysis.	
PC21 FD Estimated Cost of Solution (2018/19 prices)		Forecast Cost of Solution (Nominal prices)		Commentary on Material Solution Cost Changes	
£10m		£12.91m		FD uplifted as per RPI used in Nov 2022 OBR	

ACTIVITY COMPLETED TO DATE AND OUTCOMES TO DATE (MARCH 2023)

Key milestone target dates have been impacted as a result of a delay in the delivery of the Final Determination and the issuing of appropriate tenders to award.

Outline approach has been developed to specifically target renewal of PVC and AC mains disproportionately contributing to leakage within DMAs and not currently identified via traditional WIMM methodologies. RPS Group Consultants have reviewed NI Water's outline approach which identified mains targeted for renewal and have determined the NIW approach to be consistent with UKWIR guidance.

A review of this approach was undertaken by RPS Group Consultants regarding industry related studies and available guidance documentation with the development of a best practice methodology for NI Water.

Utilising the outline approach, sections of main have been identified, prioritised and submitted to the Asset Delivery team for review and programming into existing proposed work package areas for construction.

The mains replacement programme, of PVC & AC mains sections with high NRR and leakage, was issued in three batches to the Asset Delivery team. Asset Delivery reviewed each corresponding batch to determine delivery packages, costings and delivery timescales. The scope of work within each of the three batches, and progress of work under each batch, is shown in the table below.

Batch No.	No of mains	Cost	Completed schemes	
			No of mains	Cost
1	32	£2,945k	21	£2,225k
2	17	£1,386k	10	£867k
3	31	£1,828k	16	£786k
Totals	80	£6,159k	47	£3,878k

Post-benefits analysis has commenced for 3nr DMAs where all sections of mains identified for renewal have been constructed. Dates of eligibility for benefits analysis are September 2022, December 2022, and February 2023.

PLANNED NEXT STEPS FOR DELIVERY

Benefits analysis will continue as mains sections are completed within DMAs. It is expected that this will be an ongoing iterative analysis process with the determination of full benefits only likely to become apparent after several years.

It is proposed to identify batch 4 of leakage targeted mains for renewal by developing the WIMM methodology in line with NIW's outline approach, being consistent with UKWIR guidance, in consideration of RPS review recommendations and any post-benefits analysis undertaken.

The identification of further batches will consider the iterative findings of the ongoing benefits analysis.

It is proposed to submit an updated programme to the UR as part of the Mid Term Review.

PROPOSED MAINTENANCE EXPENDITURE / ADDITIONAL OPEX from CAPEX

N/A

IMPACT OF SCOPE / PROGRAMME CHANGES ON CAPITAL DELIVERY / OUTPUTS PROGRAMME

None

IMPACTS ON CAPITAL OUTPUTS PROGRAMME LINKED TO TABLES 40, 40a & 40b			
Links to Tables Completed	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Comments – Leakage packages are primarily JI228 (WP1), JI270 (WP2) and JI279 (WP3)
RISKS & ISSUES ASSOCIATED WITH THIS DEVELOPMENT OBJECTIVE			
Although construction and delivery costs continue to increase, it is proposed to adhere to the PC21 FD Estimated Cost of Solution of £10,000k (adjusted to nominal prices). Risks include			
<ul style="list-style-type: none"> Constrained resources to deliver all the planned schemes and packages during PC21 			
WIDER BENEFITS OF THIS DEVELOPMENT OBJECTIVE			
Future reduction in leakage resulting in lower abstraction rates, less use of energy and materials and wider environmental benefits.			
LINKAGE TO OTHER DEVELOPMENT OBJECTIVES			
It is understood there is no linkage between this Development Objective (Section 6) and any other Development Output within Table 47.			

Development Objective – Expenditure Summary

Table DO1 Expenditure on Development Objective (Nominal Prices)

Category	Spend to End March 2023 (£m)	Anticipated Future Spend (£m)	Anticipated Total DO Spend (£m)	Comment
Civil				
M&E				
Materials / Equipment				
NIE				
Lands				
Site Investigation				
Consultancy	£0.005m	£0.032m	£0.039m	Note the £0.039m is the FD £0.03m adjusted to nominal.
Pilot Studies				
Add Others as necessary				
Totals	£0.005m	£0.032m	£0.039m	
PC21 Projected Spend on Development Objective			£0.039m	

DEVELOPMENT OBJECTIVE [DO]		
Ref	Development Objective	Sub-Programme
07	Leakage Innovation	09z
GOVERNANCE		
Directorate	SRO	Project Lead
C&OD		
REASON DEVELOPMENT OBJECTIVE IS NECESSARY		
<p>Leakage detection and reduction has become more challenging in recent years, particularly with an increasing Natural Rate of Rise. NI Water has introduced initiatives such as the CALM network training facility, transient logging, and researching and trialling new techniques such as satellite imagery, use of encapsulation repair fittings and fast logging. However, NI Water must keep up with technological advances in leakage detection equipment and methods if we are to reduce leakage to the Sustainable Economic Level of Leakage (SELL) of 150 MI/d by the end of PC21.</p>		
DEVELOPMENT OBJECTIVE TO CONFIRM SOLUTION SPEND IN PC21 &/or PC27		
PC21 only <input type="checkbox"/>	PC27 only <input checked="" type="checkbox"/>	PC21 and PC27 <input type="checkbox"/>
PROJECT SCOPE		
<p>The Leakage Innovation methods and equipment are contained within the project 1647 - Leakage Enhancement. The cost estimates are as follows: Acoustic logging (£1.68m) Satellite imagery (£1.5m) New equipment – GRP/Gas/Drones (£0.25m)</p> <p>No change to scope.</p>		
COMMENTARY ON MATERIAL CHANGES TO SCOPE		
N/A		
PROJECT OUTCOMES		
<ul style="list-style-type: none"> Assist with locating leaks Help to achieve the leakage reduction targets More efficient leakage detection Improve H&S of leakage operatives <p>New Technologies Assessment and Recommendations Reports as trials are completed.</p> <p>No change to PC21 FD project outcomes.</p>		
COMMENTARY ON MATERIAL CHANGES TO PROJECT OUTCOMES		
N/A		
UR MONITORING EXPECTATIONS		
<p>Progress on the delivery of this objective will be monitored and reported on through the annual cost and performance report process as a minimum. In addition, we expect NI Water to:</p> <ul style="list-style-type: none"> Develop and submit an updated programme for the delivery of this objective. Engage with UR staff on the timing of additional engagement, reviews and the determination of any outcomes flowing from the successful completion of the development stages. An update on results of the trials and pilot studies is likely to be required as part of the engagement process. Broader engagement on leakage delivery and engagement may also be required. 		

<ul style="list-style-type: none"> Engage with UR staff at the Mid-term Review on the provision of funding for the remainder of PC21, noting UR comments on funding dependency in Annex I of the PC21 determination. Engage with UR staff on the implications for PC21 Leakage targets if required. 					
HOW UR MONITORING EXPECTATIONS HAVE BEEN FULFILLED					
<ul style="list-style-type: none"> UR advised of progress in annual cost and performance report process NIW presented update to UR on 18th October 2022 – see attached presentation given to UR 'DO7 - Leakage Innovation Table 47 Section 7' 					
PROGRAMME					
See Master DO Programme v0 dated 07/07/23.					
KEY MILESTONES FOR DEVELOPMENT OBJECTIVE					
Description Key PC21 FD DO Milestones	FD21 Annex T Milestone Target Date	Status Vs FD21 Target	Current Milestone Target Date	Status Vs Current Target	Commentary on Material Milestone Date Changes <u>AND / OR</u> Reasons for any material Delay
Submit updated programme to UR	N/A	N/A	Mar 27	On Target	Programme updates are provided to the UR with each AIR return
Output report on current satellite imagery trial	Mar 21	N/A	Mar 27	On Target	NOTE - The original date proposed in Annex T (Mar 21) was unachievable as the FD was not available at this time. Therefore 'N/A' has been entered against Mar 21.
Analysis on satellite imagery trial 1	N/A	N/A	Mar 22	Complete	Evidence to be provided – see attached presentation 'DO7 - AIR Report Leakage Innovation Table 47 Section 7', Slide 4
Satellite imagery trial 2	N/A	N/A	Mar 27	On Target	N/A
Purchase of acoustic and	Mar 23	N/A	Mar 27	On Target	NOTE - The original date

transient loggers					proposed in Annex T (Mar 23) was unachievable as DO was to take place over the course of PC21 with ongoing trials, so N/A has been entered against Mar 23.
Investigate and undertake trials on other satellite imagery technologies, with a report on output.	Mar 27	Ongoing	Mar 27	On Target	Continuing to use satellite technology in targeted areas throughout PC21
Purchase of other equipment (thermal camera drones, Ground Penetrating Radar, and private gas detectors) with trials and periodic reports on outputs	Mar 27	Ongoing	Mar 27	On Target	Ongoing trials and use of innovative methods
Update UR on results of trials and pilot studies Engagement meetings to be arranged between UR and NIW in due course	N/A	N/A	Mar 27	On Target	Met with UR on 18/10/22, will continue to meet UR throughout PC21
KEY MILESTONES FOR SOLUTION INVESTMENT					
N/A	N/A	N/A	N/A	N/A	N/A
EXPENDITURE [See Also Table DO1 below]					
FD21 Annex T Estimated Total Cost of DO (2018/19 prices)	Forecast Cost of DO (Nominal prices)		Commentary on Material Total Cost Changes for DO		
£3.43m	£4.430m		Forecast Cost of DO has been uplifted for inflation – figures are from the Nov 2022 OBR		
PC21 FD Estimated Cost of Solution (2018/19 prices)	Forecast Cost of Solution (Nominal prices)		Commentary on Material Solution Cost Changes		
£0m	£0m		No solution costs within this period		

ACTIVITY COMPLETED TO DATE AND OUTCOMES TO DATE (MARCH 2023)

Output report on current satellite imagery trial - Under the PC21 Leakage Strategy key area for Innovation; Satellite imagery leak detection is a strategic solution being explored by NI Water to monitor the water distribution system to facilitate leakage detection. Satellite Imagery provides remote sensing solution for locating leaks on potable water network across any type of terrain by scanning for ground saturation displaying areas of potential leakage. A procurement exercise was undertaken and in January 22 a new contract was established for the use of satellite imagery with an experienced supplier. NIW completed two pilot scans utilising satellite imagery in 2020/21 covering parts of the East, South and West of NI. 2655 Points of Interest (POIs) were generated by the scan, where 1226 POIs were associated defects, giving a leak/POI success rate of 46.2%.

Purchase of acoustic and transient loggers –This key milestone is in effect 'Utilisation of acoustic noise logging to locate and repair leak and review subsequent effectiveness of such technology'. This reflects the ongoing trial nature of this innovation and any goods or services associated with this technology. The target date should be updated to Mar-27 as this key milestone spans the PC21 period.

Acoustic logging is an area of technology within the water industry that is developing with advances in the equipment. In early 2022 NI Water established a procurement mechanism to purchase and trial acoustic logger technology using three leading suppliers of this type of technology. During 2022-23 and beyond, this technology will continue to be tested in order to establish the best performing loggers for NI Water's network.

Hydro Loggers were purchased and used as part of a pilot in 5 DMAs to assess their ability to locate leaks, and how they might be useful as another leakage detection tool. The results of the logger trial using the Hydro Logging technique was proven to be successful and would indicate the technology could provide benefits in a number of aspects of leakage management and detection. They are currently being used in other DMAs as leakage detection equipment.

Acoustic loggers from 2 separate suppliers were purchased and trialed across DMAs in the South and West regions. Work is still ongoing in determining their best use but they have had success in locating leakage and could provide benefits within leakage detection and management. Acoustic loggers will continue to be used through PC21.

Using NI Water's Professional Services Framework IF180 contract, Atkins were appointed to undertake an acoustic logging trial using FIDO acoustic loggers ('Bugs') to help identify potential leak locations within the Malone Road DMA, in South Belfast and a second adjacent DMA. This trial however proved to be unsuccessful in that we did not see benefits from using this technology compared to other acoustic methods.

Investigate and undertake trials on other satellite imagery technologies, with a report on output - NIW have completed two successful pilot scans utilising satellite imagery in 2020/21. In 2022 NI Water set up a new Satellite Imagery Detection contract and the remaining areas of the network not already captured during the initial pilot phases were scanned. For 2022, 1502 Satellite Point of Interest (POIs) were investigated, with 679 leaks being identified, giving a leak/POI rate of 45%. Two further sweeps have since taken place with these POIs still currently under investigation by leakage teams.

Purchase of other equipment (thermal camera drones, Ground Penetrating Radar, and private gas detectors) with trials and periodic reports on outputs - NIW have undertaken trials utilising an innovative non-disruptive repair technique on customer side

leakage. The Scheme involves the insertion of a small device called an Aquapea into the water pipe that will repair the leak without the need for excavation within customer properties. Aquapea was trialed where 9 properties (within the East area) with known private side leakage were selected for the pilot; these properties were selected based upon suitability. Overall, the Aquapea had an 11% success rate, which was much lower than expected. Factors impacting upon success included: leak size, supply arrangements (shared supply), leaking joints & pressure etc.

Due to the various types of customer side leaks (in terms of leak size, supply arrangements & complexity etc), the trial demonstrated that Aquapea product would not be a cost effective BAU tool to resolve customer side leaks identified by NIW.

NI Water engaged a light aircraft survey company, APEM, to undertake an aerial survey of 123km of trunk mains in the Fofanny supply zone and identified has having flow audit imbalances.

The survey techniques utilised high resolution visible and near-infrared imagery and advanced imagery analytics to identify points of interest (POIs) regarding leakage. Optimum conditions for surveying are when vegetation is under dry weather stress.

78nr POIs were identified with investigation ongoing and 15nr leaks detected. In addition, 682nr cattle troughs were identified. These will be investigated with the potential of identifying illegal usage or increasing billed consumption.

NI Water has been working with a consultant regarding the use of detection dogs to find leaks. Two dogs have been recently trained and are being utilised for leakage detection in both DMA and trunk main surveys. A review of their detection performance continues however at this stage results are encouraging.

PLANNED NEXT STEPS FOR DELIVERY

As trials of satellite (or similar) imagery technologies, acoustic & transient loggers, and the purchase of other equipment or innovative goods and services progress over time, NI Water will critically evaluate each innovation to determine its benefits.

PROPOSED MAINTENANCE EXPENDITURE / ADDITIONAL OPEX from CAPEX

- Upkeep/maintenance of equipment. i.e. logger batteries/replacement loggers
- Calibration needed with leakage equipment

IMPACT OF SCOPE / PROGRAMME CHANGES ON CAPITAL DELIVERY / OUTPUTS PROGRAMME

No impact of scope/programme on Capital Delivery as no solutions exist.

IMPACTS ON CAPITAL OUTPUTS PROGRAMME LINKED TO TABLES 40, 40a & 40b

Links to Tables Completed	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	N/A as no solutions exist
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RISKS & ISSUES ASSOCIATED WITH THIS DEVELOPMENT OBJECTIVE

- Funding constraints affecting ability to continue purchasing equipment

WIDER BENEFITS OF THIS DEVELOPMENT OBJECTIVE

- Future reduction in leakage resulting in lower abstraction rates, less use of energy and materials and wider environmental benefits

LINKAGE TO OTHER DEVELOPMENT OBJECTIVES

There is no linkage with other Development Objectives.

Development Objective – Expenditure Summary**Table DO1 Expenditure on Development Objective (Nominal Prices)**

Category	Spend to End March 2023 (£m)	Anticipated Future Spend (£m)	Anticipated Total DO Spend (£m)	Comment
Civil				
M&E				
Materials / Equipment	£ 0.237m	£ 0.869m	£ 1.106m	
NIE				
Lands				
Site Investigation				
Consultancy	£ 0.660m	£ 2.421m	£ 3.081m	
Pilot Studies	£ 0.052m	£ 0.191m	£ 0.243m	
Add Others as necessary				
Totals	£ 0.949m	£ 3.481m	£ 4.430m	
PC21 Projected Spend on Development Objective			£ 4.430m	

DEVELOPMENT OBJECTIVE [DO]		
Ref	Development Objective	Sub-Programme
08	Smart Networks – ITS Strategy	09z
GOVERNANCE		
Directorate	SRO	Project Lead
C&OD		
REASON DEVELOPMENT OBJECTIVE IS NECESSARY		
<p>The needs for Smart Networks were identified as part of our Interruptions to Supply (ITS) Strategy where the primary aim is to improve customer service. Advances in technologies will enable NI Water to quickly identify asset failures and mobilise repair squads, thus minimising the customer impact. This investment will help achieve a CALM network, improve reliability, improve customer response, reduce customer minutes lost and meet our targets for reportable DG3 figures.</p>		
DEVELOPMENT OBJECTIVE TO CONFIRM SOLUTION SPEND IN PC21 &/or PC27		
PC21 only <input type="checkbox"/>	PC27 only <input type="checkbox"/>	PC21 and PC27 <input checked="" type="checkbox"/>
PROJECT SCOPE		
<p>We need to develop the scope for Smart Networks, which will involve the installation of various equipment and improving our methods to allow us to monitor in real time and know what is happening across the network. It will involve further roll-out of PMA permanent monitoring, the design and installation of control equipment and remote sensors, improved mains designs and temporary supply points at key sites.</p> <p>The level of resource needed for the 'Development Objective' at this concept stage is assumed as 1 FTE over the 6 year period (£300k). Depending on the scale of work required and programmes for completion, this level of resource is likely to increase but at this stage the scope is unknown. This resource cost has not been included in any specific IPAC project.</p> <p>The capital investment for Smart Networks is in IPAC Project 1665 – Smart Networks – ITS Strategy (£7.0m).</p> <p>No change to scope.</p>		
COMMENTARY ON MATERIAL CHANGES TO SCOPE		
N/A		
PROJECT OUTCOMES		
<ul style="list-style-type: none"> • Improves customer service by monitoring the network to quickly identify and repair asset failures • Helps to achieve a CALM network • Helps to meet our targets for reportable DG3 figures. • Provides better facilities for alternative supplies during major interruptions • Minimises customer impact by improving the location and operability of valves <p>New Technology Assessment and Smart Networks Trial Outcomes Report. Smart Networks Strategy Report.</p> <p>No change to PC21 FD project outcomes.</p>		
COMMENTARY ON MATERIAL CHANGES TO PROJECT OUTCOMES		
N/A		

UR MONITORING EXPECTATIONS					
<p>Progress on the delivery of this objective will be monitored and reported on through the annual cost and performance report process as a minimum. In addition, we expect NI Water to:</p> <ul style="list-style-type: none"> • Develop and submit an updated programme for the delivery of this objective. • Engage with UR staff on the timing of additional engagement, reviews and the determination of any outcomes flowing from the successful completion of the development stages. An update on results of the studies and trials is likely to be required as part of the engagement process. • Engage with UR staff on the implications for PC21 interruptions to supply targets if required, including the potential for introducing customer minutes lost targets at the PC21 Mid-term Review. 					
HOW UR MONITORING EXPECTATIONS HAVE BEEN FULFILLED					
<ul style="list-style-type: none"> • UR advised of progress in annual cost and performance report process • Presented update to UR on 18th October 2022 					
PROGRAMME					
See Master DO Programme v0 dated 07/07/23.					
KEY MILESTONES FOR DEVELOPMENT OBJECTIVE					
Description Key PC21 FD DO Milestones	FD21 Annex T Milestone Target Date	Status Vs FD21 Target	Current Milestone Target Date	Status Vs Current Target	Commentary on Material Milestone Date Changes <u>AND</u> <u>/OR</u> Reasons for any material Delay
Submit updated programme to UR	N/A	N/A	Mar 27	On Target	Programme updates are provided to the UR with each AIR return
UR Liaison & Engagement	N/A	N/A	Mar 27	On Target	Presentation given to UR on 18 th October 2022 – Please see attached Presentation 'DO8 - UR Smart Networks Table 47 Section 8'
Initial reviews of existing assets and network 'readiness' for Smart Networks. This includes permanent monitoring sites, control equipment, telemetry coverage, mains designs and asset standards, and	Mar 21	Ongoing	Mar 27	On Target	Ongoing desktop investigations will continue until end of PC21

temporary supply points. Prepare Business Case and obtain the necessary approvals.					
Develop packages of Smart Networks capital works and progress a rolling programme of approvals and procurement for the design and construction of the works.	Mar 27	Ongoing	Mar 27	On Target	Ongoing programme throughout rest of PC21
KEY MILESTONES FOR SOLUTION INVESTMENT					
Complete first batch of pilots and testing of Smart Networks technologies, with periodic reviews and output reports.	Mar 23	Complete	Mar 23	Complete	First batch of Improved Control WBS sites completed, please see attached presentation 'DO8 - AIR Report Smart Networks Table 47 Section 8 June 23', slide 17
Complete further batches on a rolling programme	Mar 27	Ongoing	Mar 27	In Progress	Ongoing throughout PC21
EXPENDITURE [state cost base for all costs e.g. FY18/19 – See Also Table DO1 below]					
FD21 Annex T Estimated Total Cost of DO (2018/19 prices)	Forecast Cost of DO (Nominal prices)		Commentary on Material Total Cost Changes for DO		
£0.3m (TBC during development)	£0.118m		Forecast Cost of DO figure based on information from Smart Networks Budget Profile as seen in Annex 1		
PC21 FD Estimated Cost of Solution (2018/19 prices)	Forecast Cost of Solution (Nominal prices)		Commentary on Material Solution Cost Changes		
£5.189m	£6.654m		Forecast Cost of Solution based on uplifted budget taken from		

		Nov 2022 OBR - Annex 1 table has not yet been fully uplifted to match this Forecast
ACTIVITY COMPLETED TO DATE AND OUTCOMES TO DATE (MARCH 2023)		
<p>The activities outlined below have been identified to deliver a smarter network technology to support further reductions in supply interruptions, reducing the number of lost minutes per property, and improving the level of service to our customers:</p>		
<p>The needs for Smart Networks were identified as part of our Interruptions to Supply (ITS) Strategy where the primary aim is to improve customer service. We will develop the scope for Smart Networks, which will involve the installation of various innovative equipment and improving our methods to allow us to monitor in real time and know what is happening across the network.</p>		
<p>See Annex 1 for a breakdown of costs.</p>		
<p>PRV flow / pressure modulation controllers. Under the Smart Networks/ITS project we aim to prioritise 80 x PRVs which impact customer service e.g., high pressure variation within the Pressure Managed Area (PMA) causing low pressure during the day and high pressure at night. 6 x PRV schemes were installed in 21/22. 12 x PRV schemes were installed in 22/23.</p>		
<p>Telemetry Installations at WBS NI Water's current position is there are 234 operational WBS of which 53 WBS still require telemetry to be installed in PC21. 3 x WBS have been upgraded to telemetry in 21/22. 9 x WBS have been upgraded to Telemetry to provide vital network information in 22/23, with a further 5 sites, that only gave basic data, upgraded in 22/23. PC21 total to date of 12 new Telemetry installations, 5 upgrades.</p>		
<p>Improved / Smart controls at WBS 50 high priority WBSs have been identified for Improved/Smart real time pressure controls where pumped outlet pressure requires better control across the 24-hour period. 9 x WBS have been upgraded to Smart Controls in 21/22. 15 x WBS have been upgraded to Improved/Smart real time pressure controls in 22/23. PC21 total to date of 23 upgraded sites.</p>		
<p>See Annex 2 for WPS prioritisation matrix</p>		
<p>Pressure Monitoring of all 3071 PMA's A permanently deployed pressure logger is a key component of a Smart Network providing daily pressure data in relation to the properties within that PMA. Installation work for approx. 120 PPMP connections have been completed in 21/22. 400 PPMP connections have been completed in 22/23.</p>		
<p>Additional Fast Fill Points. Fast fill points are permanent installations on the networks to enable tankers to be filled directly from the water network. We have 11 FFPs at present and during PC21 we aim to provide up to an additional 13 fast fill points for full coverage across each area supplied from the 24 x WTWs. 1 x new FFP installed in 21/22. 3 x new FFPs installed in 22/23.</p>		

Additional Mobile Pumps

Mobile pumps significantly reduce the pumping time from tankers to assets such as service reservoirs. **NI Water have purchased 3 x new fast flow mobile pumps in 21/22. 1 x large Mobile Booster Trailer was purchased in 22/23; this has 3 x VSD pumps, which can and has been used for both planned and unplanned interruptions and during major incidents to keep customers in supply.**

Flow modulation on large users.

Our aim for PC21 was to install a flow modulated PRV on large users where their daily demand profile is causing large flow and pressure fluctuations across the DMA. **Continuing to gather data in order to plan best solution, should progress in 23/24.**

Water Quality Monitoring within top DMAs.

Our aim is to install a small number of permanent monitors connected to telemetry as an early warning of water quality problems. **1 x permanent Water Quality Monitoring Installation in 22/23.**

Purchase portable transient loggers.

Loggers allow the identification of transients, and the subsequent resolution which will create a calmer network reducing bursts, interruptions, reducing leakage and water quality issues. **45 units ordered along with 50 new batteries for existing units, awaiting delivery.**

Transient / surge reduction on existing assets.

This is the capital required to reduce transients on up to 13 existing assets following the transient logging and analysis. **1 x Transient/surge reduction scheme in 22/23, this was installed at Ballybracken Doagh WPS to reduce transients that had caused several interruption to supply events.**

Development of a Smart Network Trial & Smart Network Strategy.

This will allow to evaluate the technology in conjunction with data analytics and provide appropriate learnings to develop an overarching Smart Network strategy. **Plan to progress the trial in 2023/24.**

PLANNED NEXT STEPS FOR DELIVERY

The initiatives listed in the 'Activity completed to date and its outcome' table below commenced in 2021/22 and will continue to be delivered throughout the rest of the PC21 period.

PROPOSED MAINTENANCE EXPENDITURE / ADDITIONAL OPEX from CAPEX

Some operational and maintenance costs will be associated with permanently installed equipment, for example sensors/monitoring equipment, VSDs, loggers and batteries.

IMPACT OF SCOPE / PROGRAMME CHANGES ON CAPITAL DELIVERY / OUTPUTS PROGRAMME

No significant scope/programme changes

IMPACTS ON CAPITAL OUTPUTS PROGRAMME LINKED TO TABLES 40, 40a & 40b

Links to Tables Completed	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Comments – solutions are being delivered via Ops Capital funding
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RISKS & ISSUES ASSOCIATED WITH THIS DEVELOPMENT OBJECTIVE

- Funding constraints affecting ability to continue purchasing equipment

WIDER BENEFITS OF THIS DEVELOPMENT OBJECTIVE
<ul style="list-style-type: none"> The installations of, and advances in, these technologies listed above will enable NI Water to quickly identify asset failures, through improved data and visibility, and mobilise repair squads, thus minimising the customer impact. The activities will help maintain supply to customers and help achieve a CALM network, improve reliability, improve customer response, reduce customer minutes lost and meet our targets for reportable DG3 figures.
LINKAGE TO OTHER DEVELOPMENT OBJECTIVES
There may be a very small potential linkage between Smart Networks (DO8) and Smart Metering (DO24) as part of development of the Smart Networks Trial/Strategy. Data from smart meters may be useful in building data towards the Smart Networks Trial.

Development Objective – Expenditure Summary

Table DO1 Expenditure on Development Objective (Nominal Prices)

Category	Spend to End March 2023 (£m)	Anticipated Future Spend (£m)	Anticipated Total DO Spend (£m)	Comment
Civil				
M&E				
Materials / Equipment	£0.019m	£0.019m	£0.038m	
NIE				
Lands				
Site Investigation				
Consultancy				
Pilot Studies		£0.08m	£0.08m	
Add Others as necessary				
Totals	£0.019m	£0.099m	£0.118m	
PC21 Projected Spend on Development Objective			£0.118m	

Annex 1

***PC21 Smart Network Budget Profile**

Item	Category	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	Total
Smart Network Development	Capital	1000000	1000000	1000000	1000000	1000000	1000000	1000000	1000000	1000000	10000000
Smart Network Development	Revenue	500000	500000	500000	500000	500000	500000	500000	500000	500000	5000000
Smart Network Development	Operating	200000	200000	200000	200000	200000	200000	200000	200000	200000	2000000
Smart Network Development	Other	100000	100000	100000	100000	100000	100000	100000	100000	100000	1000000
Totals		1800000	1800000	1800000	1800000	1800000	1800000	1800000	1800000	1800000	18000000

* Total amounts for years 21/22 and 22/23 are actuals, next four years were based on figures which have not yet been adjusted for inflation.

DEVELOPMENT OBJECTIVE [DO]		
Ref	Development Objective	Sub-Programme
09	WwPS / CSO Quality (UID) and WwPS (Capacity increase)	12b & 12c
GOVERNANCE		
Directorate	SRO	Project Lead
AD		
REASON DEVELOPMENT OBJECTIVE IS NECESSARY		
This development output is required as the Drainage Area Plan (DAP) models used to define the solutions for the PC21 Business Plan have not yet been developed to Statement of Need status.		
DEVELOPMENT OBJECTIVE TO CONFIRM SOLUTION SPEND IN PC21 &/or PC27		
PC21 only <input checked="" type="checkbox"/>	PC27 only <input type="checkbox"/>	PC21 and PC27 <input type="checkbox"/>
PROJECT SCOPE		
Combined Sewer Overflows, Wastewater Pumping Station CSO's and emergency relief overflows that are assessed to be unsatisfactory intermittent discharges in accordance with NIEA Summary Guidance document in relation to Intermittent Discharges V1.9 March 2015.		
Aim of this DO is to achieve scope certainty for named PC21 UIDs.		
COMMENTARY ON MATERIAL CHANGES TO SCOPE		
N/A		
PROJECT OUTCOMES		
<ul style="list-style-type: none"> 94 No UIDs (Including WwPS Capacity increase sites) addressed in PC21, Reduced H&S risk to operatives, Reduction of pollution incidents exceeding discharge consent potentially improving water quality, Sufficient network capacity to accommodate current and future development. 		
Proposed project outcomes		
Point of Clarification: The Final Determination targets the delivery of 136 UIDs, not 94 (as outlined in Annex T). Of these 25 are PC15 carryover schemes, with the remainder, 111 to be confirmed through scope certainty Batch submissions.		
COMMENTARY ON MATERIAL CHANGES TO PROJECT OUTCOMES		
N/A		
UR MONITORING EXPECTATIONS		
<ul style="list-style-type: none"> Develop and submit an updated programme for the delivery of this objective. Engage with UR staff on the timing of additional engagement, reviews and the determination of any outcomes flowing from the successful completion of the development stages. Engage with NIEA on the needs, priorities and programme for delivery. Submit business cases for solutions, including costs and justification, in accordance with agreed timetable to UR for determination. Engage with UR staff on the implications for PC21 nominated output targets if required. 		
Note that this links to other PC21 development objectives related to programme scope/uncertainty.		
HOW UR MONITORING EXPECTATIONS HAVE BEEN FULFILLED		
NIW provide NIEA with monthly progress updates on DAP progress through the Wastewater Investment Group. NIW has developed a dashboard which tracks progress,		

provides visibility of priorities and future workload planning in relation to Statement of Needs.

NIEA has provided a Statement of Need for every named asset in the PC21 programme in relation to sub programme 12b.

PROGRAMME

Statement of Need tracker



SoN Tracker.pptx

See Master DO Programme v0 dated 07/07/23.

KEY MILESTONES FOR DEVELOPMENT OBJECTIVE

Description Key PC21 FD DO Milestones	FD21 Annex T Milestone Target Date	Status Vs FD21 Target	Current Milestone Target Date	Status Vs Current Target	Commentary on Material Milestone Date Changes AND /OR Reasons for any material Delay
Fully developed solution (NIW Stage A1). An estimated 60% prior to the PC21 mid-point review.	Mar 24	Complete	Mar 23	Complete	Complete for 100% of studies ahead of milestone target date
Develop and submit an updated programme for the delivery of this objective.			June/July 2022 (Air 22)	Complete	Complete – sufficient evidence for scope certainty batch submission
Engage with NIEA on the needs, priorities and programme for delivery.			Mar 23	Complete	Complete
Submit business cases for solutions, including costs and justification, in accordance with agreed timetable to UR for determination.			Sep 21 - Mar 23	Complete	Complete
Submit batch 1 – 13 UID's			Sep 21	Complete	Complete – sufficient evidence for scope certainty

					batch submission
Submit batch 2 – 19 UIDs			Mar 22	Complete	Complete – sufficient evidence for scope certainty batch submission
Submit batch 3 – 29 UID's			Sep 22	Complete	Complete – sufficient evidence for scope certainty batch submission
Submit batch 4 – 50 UIDs			Mar 23	Complete	Complete – sufficient evidence for scope certainty batch submission. Evidence provided in letter/email sent for DO25.
KEY MILESTONES FOR SOLUTION INVESTMENT					
Delivery of solution investment within the PC21 business period			Mar 27	On Target	This milestone is under the remit of Capital Delivery
EXPENDITURE [See Also Table DO1 below]					
FD21 Annex T Estimated Total Cost of DO (2018/19 prices)	Forecast Cost of DO (Nominal prices)	Commentary on Material Total Cost Changes for DO			
£14m	£1.5m	<i>Costs are significantly lower than estimated in Annex T and absorbed in DO16 under K1749 – Business as Usual DAP programme (Year 1).</i>			
PC21 FD Estimated Cost of Solution (2018/19 prices)	Forecast Cost of Solution (Nominal prices)	Commentary on Material Solution Cost Changes			
£148.04m	TBC	<i>To be confirmed by the MTR process. NI Water are investigating these costs and will provide an update for the AIR23 submission</i>			
ACTIVITY COMPLETED TO DATE AND OUTCOMES TO DATE (MARCH 2023)					
Activity completed to date and outcomes					
Following submission of PC21 business case, this Development Output has been divided into 4 batch submissions to be submitted to the UR at regular intervals with a completion date of March 23.					
Statements of Need have been received for all drainage catchments which contain PC21 projects (12b). All batch submissions (1-4) have been completed, achieving scope certainty of 111 no. UIDs.					
Precautionary solutions have been developed by Asset Management and subsequently handed off to Capital Delivery teams for costing.					
PLANNED NEXT STEPS FOR DELIVERY					
Development objective is complete – no planned next steps.					

Estimated spend on Development Objective			
NI Water are investigating these costs and will provide an update for the AIR23 submission.			
LINKS WITH OTHER DEVELOPMENT OBJECTIVES			
This Development Output is linked to S16 (Studies to Inform PC27), S19 (LWWP Networks), S20 (LWWP Wastewater Treatment Works), S25 [Addressing scope uncertainty for the Mid-term Review].			
See Master DO Programme v0 which details the links listed above.			
PROPOSED MAINTENANCE EXPENDITURE / ADDITIONAL OPEX from CAPEX			
N/A			
IMPACT OF SCOPE / PROGRAMME CHANGES ON CAPITAL DELIVERY / OUTPUTS PROGRAMME			
N/A			
IMPACTS ON CAPITAL OUTPUTS PROGRAMME LINKED TO TABLES 40, 40a & 40b			
Links to Tables Completed	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Comments
RISKS & ISSUES ASSOCIATED WITH THIS DEVELOPMENT OBJECTIVE			
N/A			
WIDER BENEFITS OF THIS DEVELOPMENT OBJECTIVE			
Scope certainty achieved for 111 UIDs.			

Development Objective – Expenditure Summary

Please refer to DO16 for expenditure summary.

Table DO1 Expenditure on Development Objective (Nominal Prices)

Category	Spend to End March 2023 (£m)	Anticipated Future Spend (£m)	Anticipated Total DO Spend (£m)	Comment
Civil				
M&E				
Materials / Equipment				
NIE				
Lands				
Site Investigation				
Consultancy	£1.5m	£0	£1.5m	<i>Costs are significantly lower than estimated in Annex T and absorbed in DO16 under K1749 – Business as Usual DAP programme.</i>
Pilot Studies				
Add Others as necessary				
Totals	£1.5m	£0	£1.5m	
PC21 FD Projected Spend on Development Objective			£1.5m	

DEVELOPMENT OBJECTIVE [DO]		
Ref	Development Objective	Sub-Programme
10	Event Duration Monitors WwPS/CSOs	12b
GOVERNANCE		
Directorate	SRO	Project Lead
AD		
REASON DEVELOPMENT OBJECTIVE IS NECESSARY		
The Event Duration Monitoring (EDM) WwPS/CSO programme of work has been classified as a development output due to the significant amount of further investigation required to confirm the priority, scope and scale of monitoring required, including interaction with DAP models currently under development.		
DEVELOPMENT OBJECTIVE TO CONFIRM SOLUTION SPEND IN PC21 &/or PC27		
PC21 only <input type="checkbox"/>	PC27 only <input type="checkbox"/>	PC21 and PC27 <input checked="" type="checkbox"/>
PROJECT SCOPE		
<p>Original Scope</p> <p>The revised Bathing Water Directive now requires NI Water to monitor and log dates and times of when CSOs release storm water to sensitive waters as listed:</p> <ol style="list-style-type: none"> 1. Designated Shellfish Waters, 2. Designated Bathing Waters, 3. Special Areas of Conservation (SACs), 4. Marine Conservation Zones (MCZs), 5. Water Framework Direction (WFD) classifications meeting a less than good status, 6. Designated as sensitive under Urban Wastewater Treatment Directive. <p>Updated Scope</p> <p>The revised Bathing Water Directive now requires NI Water to monitor and log dates and times of when CSOs release storm water to sensitive waters as listed:</p> <ol style="list-style-type: none"> 1. Designated Shellfish Waters, 2. Designated Bathing Waters, 3. Special Areas of Conservation (SACs), 4. Marine Conservation Zones (MCZs), 5. Water Framework Direction (WFD) classifications meeting a less than good status, 6. Designated as sensitive under Urban Wastewater Treatment Directive. <p>A prioritisation process is ongoing for the above and multi-criteria approach is being developed for remainder of EDMs in PC21 and PC27.</p> <p>Development of EDM policy and asset standards by Wastewater Strategy team to cover the following:</p> <ul style="list-style-type: none"> - Hardware requirements - CSO validation techniques for external reporting in near real time - Data analysis and digital data display platform - A communications plan for providing this information to NIEA and the general public by PC27. 		

COMMENTARY ON MATERIAL CHANGES TO SCOPE

Asset Management have adopted the data – this has led to changes in scope to deal with regulatory risk.

As part of PC27 planning a WQ priority piece is going on to expand the EDM programme in order to collect data for strategic asset risk profiling. This is to ensure that catchments in priority areas have 100% EDM coverage to enable several key functions:

- WWRR – statutory requirements for near real-time reporting of EDM spills
- Model confidence DAP vs EDMs
- Solution confidence
- Development of an EDM reporting dashboard – this is for key metrics on asset performance but also for maintenance and validation of spill reporting.

PROJECT OUTCOMES**Original Project Outcomes**

- To provide overflow data to inform NIEA of spills to the environment
- To alert CSDD of maintenance required at network CSOs
- Prevent premature spillages

Updated Project Outcomes

- To provide overflow data to inform NIEA of spills to the environment and compliance with impending statutory requirements for near real-time reporting of EDM spills
- To alert CSDD of maintenance required at network CSOs
- Prevent premature spillages
- EDM Reporting Dashboard
- Increased hydraulic model confidence

The key deliverables are:

- An EDM Reporting Dashboard (in near real-time)
- Increased hydraulic model confidence

COMMENTARY ON MATERIAL CHANGES TO PROJECT OUTCOMES

Project outcomes enhanced as further benefits can be realised from monitoring CSOs. Emerging legislation is also driving statutory requirements on reporting of CSO spills.

UR MONITORING EXPECTATIONS

Progress on the delivery of this objective will be monitored and reported on through the annual cost and performance report process as a minimum. In addition, we expect NI Water to:

- Develop and submit an updated programme for the delivery of this objective.
- Engage with UR staff on the timing of additional engagement, reviews and the determination of any outcomes flowing from the successful completion of the development stages.
- Engage with NIEA as required on the priority, scope and scale of monitoring required.

HOW UR MONITORING EXPECTATIONS HAVE BEEN FULFILLED					
<p>UR advised of progress in AIR22 return. Agreed programme (internally and with NIEA) of EDM delivery is provided in this AIR23 return.</p> <p>NIEA have been regularly engaged with in 21/22. Meetings with NIEA have been suspended throughout 22/23 due to NIEA time constraints but is going to be discussed at WRRR meetings in future.</p>					
PROGRAMME					
See Master DO Programme v0 dated 07/07/23.					
KEY MILESTONES FOR DEVELOPMENT OBJECTIVE					
Description Key PC21 FD DO Milestones	FD21 Annex T Milestone Target Date	Status Vs FD21 Target	Current Milestone Target Date	Status Vs Current Target	Commentary on Material Milestone Date Changes <u>AND/</u> <u>OR</u> Reasons for any material Delay
NIW Stage A0 A1 Options and Business case complete	Mar-23	On Target	Mar 21	Suspended	Agreement with NIEA that delivery of EDM programme is to be split into 3 batches covering 2 years each. Target for PC27 remains unchanged
Submit updated programme to UR	N/A	N/A	June/July 22 (AIR22)	Complete	See AIR22
Engage with UR.	N/A	N/A	2021-27	On Target	
Engage with NIEA.	N/A	N/A	2021-27	On Target	
NIW Stage A0/A1 Options and Business case complete for year 1 and 2	N/A	N/A	Mar 21	Complete	
NIW Stage A0/A1 Options and Business case complete for year 3 and 4	N/A	N/A	June 23	On Target	
NIW Stage A0/A1 Options and Business case complete for year 5 and 6	N/A	N/A	Mar 25	On Target	

KEY MILESTONES FOR SOLUTION INVESTMENT													
Delivery of first 41 sites	Apr 21	Not possible	Mar 22	Complete	Original Date was the start of PC21, amended to end of YR1								
Completion of EDM Programme	Mar 27	On Target	Mar 27	On Target									
EXPENDITURE [See Also Table DO1 below]													
FD21 Annex T Estimated Total Cost of DO (2018/19 prices)		Forecast Cost of DO (Nominal prices)		Commentary on Material Total Cost Changes for DO									
£2.6m		£3.386m		No change other than inflationary increase									
PC21 FD Estimated Cost of Solution (2018/19 prices)		Forecast Cost of Solution (Nominal prices)		Commentary on Material Solution Cost Changes									
£23.96m		£31.135m		No change other than inflationary increase									
ACTIVITY COMPLETED TO DATE AND OUTCOMES TO DATE (MARCH 2023)													
<p>Initial workshops have been completed in 21/22 with NI Water and NIEA on a two month cycle. Meetings with NI Water and NIEA ceased for 22/23 due to NIEA time constraints. Internal workshops are taking place monthly. These workshops have been set up to make sure all the required information and work needed, is captured, and set out in a proper program of work. It was agreed within NI Water to break down the programme into 3 phases and have separate Business Cases for each phase as set out on the milestones above. This phasing was Year 1&2, Year 3&4 and Year 5&6. A breakdown of this work is as follows:</p> <ul style="list-style-type: none"> The installation of the EDMs to date: <table border="1"> <thead> <tr> <th>21/22 Installs</th> <th>21/22 Target</th> <th>22/23 Installs</th> <th>22/23 Target</th> </tr> </thead> <tbody> <tr> <td>52</td> <td>50</td> <td>83</td> <td>50</td> </tr> </tbody> </table> Telemetry set ups This work is ongoing as the new EDMs are installed. Reporting template Discussions is ongoing with NIEA on format of this report. All information captured on CAR/Bud Hand over agreement has been agreed between Capital delivery/Operations and the CAR Team. <p>For 21/22 this work was discussed on a 2 month basis with NIEA. Meetings for 22/23 were postponed due to NIEA time constraints. NI Water is to propose new subgroup to meet with NIEA to cover EDMs and Flow compliance for time efficiencies.</p> <p>Continued meetings with NIEA and Internal stakeholders, getting agreement with the programme and keeping them informed on the milestones and any delays NI Water may come across.</p>						21/22 Installs	21/22 Target	22/23 Installs	22/23 Target	52	50	83	50
21/22 Installs	21/22 Target	22/23 Installs	22/23 Target										
52	50	83	50										

PLANNED NEXT STEPS FOR DELIVERY

The next steps of the EDM programme are to complete the installation of the EDMs as set out in the programme below along with approved Business Cases.

Project		PC21 Outputs					Totals	
		2021/22	2022/23	2023/24	2024/25	2025/26		2026/27
1	K1696 Phase (Years 1 & 2)	Target	50	50	0			100
	Actual	52	83	80				175
2	K1699 Phase (Years 3 & 4)	Target			100	150	0	250
	Actual			0	0	0		0
3	K1700 Phase (Years 5 & 6)	Target					150	146
	Actual					0	0	0
K1835 WwTW F Comp & EDM's	Target	16	17	17	16	18	16	98
	Actual	0	0	0	0	0	0	0
PC21 Cumulative Total	Target	66	67	117	166	166	162	744
	Actual	52	83	80	0	0	0	175
							Target Total:	744
							Actual Total:	175

As part of PC27 planning a WQ priority piece is going on to expand the EDM programme to collect data for strategic asset risk profiling. This is to ensure that catchments in priority areas have 100% EDM coverage to enable several key functions:

- WWRR – statutory requirements for near real-time reporting of EDM spills
- Model confidence DAP vs EDMs
- Solution confidence
- Development of an EDM reporting dashboard – this for key metrics on asset performance but also for maintenance and validation of spill reporting.

To achieve 100% EDM coverage in the high priority catchments temporary EDM loggers will be rolled out where gaps are identified until the main capital project can install permanent loggers.

PROPOSED MAINTENANCE EXPENDITURE / ADDITIONAL OPEX from CAPEX

It has been highlighted during the start of this work, that increased funding will be needed to carry out the maintenance and reporting of the new EDMs in PC27. This will be considered as part of the PC27 planning processes. Currently, it is not envisaged that any additional CAPEX is needed in PC21. Work is ongoing to try and evaluate how much CAPEX is required in PC27 and a management strategy for EDMs

IMPACT OF SCOPE / PROGRAMME CHANGES ON CAPITAL DELIVERY / OUTPUTS PROGRAMME

With the need to have 100% EDM coverage in priority catchments and secondary line of project work will be commenced in 23/24 to rollout temporary EDM loggers. This will enhance the current programme as it gives NI Water data insights at a quicker rate to the current programme rollout.

IMPACTS ON CAPITAL OUTPUTS PROGRAMME LINKED TO TABLES 40, 40a & 40b

Links to Tables Completed	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Comments
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RISKS & ISSUES ASSOCIATED WITH THIS DEVELOPMENT OBJECTIVE

As other stakeholders, in particular external, learn about this programme, there is an increase in Freedom of information requests for this type of information. The concern is the information is being used in a particular way which it was not set up to do, giving distorted expectations.

WIDER BENEFITS OF THIS DEVELOPMENT OBJECTIVE
Wider benefits of this development objective include: <ul style="list-style-type: none"> • Asset performance insights • A move towards real time monitoring and predictive analytics – proactive approaches to reducing spills • Improving the confidence in hydraulic models
LINKAGE TO OTHER DEVELOPMENT OBJECTIVES
There is some linkage to other Development Objectives, as follows: <ul style="list-style-type: none"> • Section 12 – Storm Water Separation

Development Objective – Expenditure Summary

Table DO1 Expenditure on Development Objective (Nominal Prices)

Category	Spend to End March 2023 (£m)	Anticipated Future Spend (£m)	Anticipated Total DO Spend (£m)	Comment
<i>Civil</i>				
<i>M&E</i>				
<i>Materials / Equipment</i>				
<i>NIE</i>				
<i>Lands</i>				
<i>Site Investigation</i>				
<i>Consultancy</i>	0.526	2.860	3.386	K1696, J1700, K1699
<i>Pilot Studies</i>				
<i>Add Others as necessary</i>				
Totals	0.526	2.860	3.386	
PC21 Projected Spend on Development Objective			3.386	

DEVELOPMENT OBJECTIVE [DO]		
Ref	Development Objective	Sub-Programme
11	Cranfield Catchment, Kilkeel Storm Separation	12g
GOVERNANCE		
Directorate	SRO	Project Lead
AD		
REASON DEVELOPMENT OBJECTIVE IS NECESSARY		
There is a history of external out-of-sewer flooding in the catchment, due to the limited feasibility work currently completed and the absence of a current hydraulic model.		
DEVELOPMENT OBJECTIVE TO CONFIRM SOLUTION SPEND IN PC21 &/or PC27		
PC21 only <input checked="" type="checkbox"/>	PC27 only <input type="checkbox"/>	PC21 and PC27 <input type="checkbox"/>
PROJECT SCOPE		
Complete optioneering and scope development including onsite investigation, DAP modelling, connectivity checks and stakeholder engagement on the two options proposed to achieve separation of storm water for the Kilkeel Storm Separation project.		
No change to scope.		
COMMENTARY ON MATERIAL CHANGES TO SCOPE		
Potential to Remove Scope		
Reason - Business as Usual activities		
Estimated NIW Stage A1 Options and Business case complete.		
Engage with NIEA and other stakeholders on needs and options and the programme for delivery as required.		
PROJECT OUTCOMES		
<ul style="list-style-type: none"> Ecological and Environmental Impact – reduction in out of sewer flooding due to reduced flows Alignment with Strategic Aims and Objectives Sustainable Development – reduction in OPEX costs (and therefore electricity) of WwPS and WwTW Sustainable Development – increased capacity in the sewers allowing for future developments to be granted connections. 		
No change to PC21 FD project outcomes.		
COMMENTARY ON MATERIAL CHANGES TO PROJECT OUTCOMES		
N/A		
UR MONITORING EXPECTATIONS		
Progress on the delivery of this objective will be monitored and reported on through the annual cost and performance report process as a minimum. In addition, we expect NI Water to:		
<ul style="list-style-type: none"> Develop and submit an updated programme for the delivery of this objective. Engage with UR staff on the timing of additional engagement, reviews and the determination of any outcomes flowing from the successful completion of the development stages. Engage with NIEA and other stakeholders on needs and options and the programme for delivery as required. Submit business case for solution, including costs and justification, in accordance with agreed timetable to UR for determination. Engage with UR staff on implications for PC21 DG5 targets if required. 		

HOW UR MONITORING EXPECTATIONS HAVE BEEN FULFILLED

- Programmes for delivery of this objective developed and submitted with regular updates
- Engagement with other stakeholders including NIEA, DFI, Council, and others, and continues throughout the programme as required. This is a BAU activity.
- Business case will be submitted at part of the PC 21 Mid Term Review and will include costing and justification.
- No DG5s will be delivered under this project and PC21 DG5 outputs will remain unaffected.

PROGRAMME

See Master DO Programme v0 dated 07/07/23.
P6 Programme is supplied in this update and is being developed alongside the business case.

Programme dates below relate to internal NIW dates which relate to the delivery project are not to be confused with regulatory submission.

Asset management meet with UR staff to discuss Development Objectives.

Programme ID	Sub-Programme ID	FD21	FD22	FD23	FD24	FD25	FD26	FD27	FD28	FD29	FD30	FD31	FD32	FD33	FD34	FD35	FD36	FD37	FD38	FD39	FD40

Programme ID	Sub-Programme ID	FD21	FD22	FD23	FD24	FD25	FD26	FD27	FD28	FD29	FD30	FD31	FD32	FD33	FD34	FD35	FD36	FD37	FD38	FD39	FD40

KEY MILESTONES FOR DEVELOPMENT OBJECTIVE

Description Key PC21 FD DO Milestones	FD21 Annex T Milestone Target Date	Status Vs FD21 Target	Current Milestone Target Date	Status Vs Current Target	Commentary on Material Milestone Date Changes <u>AND</u> <u>LOR</u> Reasons for any material Delay
Estimated Date for DAP Needs and Options Completion (Cranfield DAP complete)	Jun 21	Complete	No Change	Complete	N/A
Develop and submit an updated programme for the delivery of			Dec 22	Complete	Project update completed as part of Scope Certainty Batch 4 submission

Engage with UR staff on the timing of additional engagement, reviews and the determination of any outcomes flowing from the successful completion of the development stages.			Mar 23	On going	NIW Asset Management liaise with UR. Awaiting response of Scope Certainty submissions as part of the PC21 Mid Term Review
Engage with NIEA and other stakeholders on needs and options and the programme for delivery as required.			Mar 23	To be Removed	<u>To be removed as is BAU activity.</u> Ongoing and as required, Project team liaised with NIEA for draft consent, with further sign off by NIEA prior to A1. Full WOC to be completed prior to construction completion.
Submit business case for solution, including costs and justification, in accordance with agreed timetable to UR for determination			Mar 23	Complete	Submitted under Batch 4 Scope Certainty.
Engage with UR staff on implications for PC21 DG5 targets if required.			Aug 24	Removed	Removed due to no DG5s on project, 5 DG5s mentioned in the original business case relate to the entire Culmore DA. None will be delivered under this project.
Estimated NIW Stage A1 Options and	Dec 22	Delayed	Aug 24	To be Removed	<u>To be removed from DO11 as BAU activity</u>

Business case complete					DAP outputs identified areas of further site investigation required prior to confirmation of Option. A1 date moved back to allow time for completion of ECI works
KEY MILESTONES FOR SOLUTION INVESTMENT (Note this section is relating to the construction phase which is outside the scope of the Development Objective.)					
Commencement of construction	Aug 23	Delayed	Oct 24	On Target	DAP outputs identified areas of further site investigation required prior to confirmation of Option. Construction date moved back to allow time for completion of ECI works
EXPENDITURE [See Also Table DO1 below]					
FD21 Annex T Estimated Total Cost of DO (2018/19 prices)		Forecast Cost of DO (Nominal prices)		Commentary on Material Total Cost Changes for DO	
£0.2m		£0.275m		Only inflation update added.	
PC21 FD Estimated Cost of Solution (2018/19 prices)		Forecast Cost of Solution (Nominal prices)		Commentary on Material Solution Cost Changes	
£1.99m		£2.580m		Updated costs reflective of revised storage requirements from DAP and further design from the original Final Determination. Details contained in Scope Certainty Batch 4 submission.	
ACTIVITY COMPLETED TO DATE AND OUTCOMES TO DATE (MARCH 2023)					
Completed activities have been highlighted within the key milestone sections. Annex T estimated spend has been superseded with revised costs in the business case. The Business case was submitted to the UR in March 2023 as part of Batch 4.					
PLANNED NEXT STEPS FOR DELIVERY					
Local modelling Needs and Outcomes used to size options for inclusion within A1 Business Case, which will identify the preferred solution.					
Engagement with Stakeholders as part of project delivery process.					

PROPOSED MAINTENANCE EXPENDITURE / ADDITIONAL OPEX from CAPEX				
Additional OPEX funding is included within IPAC and highlights what will be needed to carry out the maintenance of the new equipment. IPAC was included within the PC21 submission.				
IMPACT OF SCOPE / PROGRAMME CHANGES ON CAPITAL DELIVERY / OUTPUTS PROGRAMME				
ECI ground truthing the sewer network to help achieve the capital delivery/outputs.				
IMPACTS ON CAPITAL OUTPUTS PROGRAMME LINKED TO TABLES 40, 40a & 40b				
Links to Tables Completed		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Comments
RISKS & ISSUES ASSOCIATED WITH THIS DEVELOPMENT OBJECTIVE				
Risk that "ground truthing" proves that neither of the two options will achieve Storm Separation.				
Risk that NIEA do not accept the preferred solution.				
Project specific risks shown below;				
Risk	Impact of risk (H/M/L)	Likelihood of risk (H/M/L)		Mitigation measure
		Status Quo	Recommended Option	
NIEA fines/bad publicity due to compliance failure	H	H	L	Provision of storage and screening to meet NIEA requirements.
Out-of-sewer flooding continues resulting in clean-up costs and bad publicity	H	H	L	Provision of storage to eliminate out-of-sewer flooding. Post-stage two flow monitoring to determine whether stage three works are needed to be completed
Delays/change to design	M	NA	L	Additional investigative works to refine the proposed option.
Poor ground conditions	H	NA	H	Further GI works are recommended following further refinement of proposed option. Ground conditions are currently assumed to be poor.
Lack of funding	H	NA	M	Development and selection of most cost-effective option following additional investigation works.
Planning permission	M	NA	L	Early engagement with relevant planning department.
Health and Safety	H	H	L	Early engagement with NI Water Operations.
Lands	H	NA	M	Early engagement with landowners. Selection of option with least impact.
Overall Risk		H	L	

WIDER BENEFITS OF THIS DEVELOPMENT OBJECTIVE
<ul style="list-style-type: none"> - Greater certainty on the success of the preferred option; - Increased headroom at receiving WwTW; - Reduction in Opex at Cranfield WwTW & associated WwPS's
LINKAGE TO OTHER DEVELOPMENT OBJECTIVES
There are no current links to any other Development Objectives.

Development Objective – Expenditure Summary

Table DO1 Expenditure on Development Objective (Nominal Prices)

Category	Spend to End March 2023 (£m)	Anticipated Future Spend (£m)	Anticipated Total DO Spend (£m)	Comment/ Project Code(s)
<i>Civil</i>		0.000		
<i>M&E</i>		0.000		
<i>Materials / Equipment</i>		0.000		
<i>NIE</i>		0.000		
<i>Lands</i>		0.000		
<i>Site Investigation</i>		0.000		
<i>Consultancy</i>	0.088	0.187	0.275	(KV230)
<i>Pilot Studies</i>		0.000		
Totals	£0.088	£ 0.187	£ 0.275	
PC21 FD Projected Spend on Development Objective			£ 0.275	

DEVELOPMENT OBJECTIVE [DO]		
Ref	Development Objective	Sub-Programme
12	Storm Water Separation	12g
GOVERNANCE		
Directorate	SRO	Project Lead
AD		
REASON DEVELOPMENT OBJECTIVE IS NECESSARY		
<p>Original Text</p> <p>Throughout Northern Ireland many wastewater networks are overloaded resulting in out of sewer flooding, unacceptable intermittent discharges (UIDs), restrictions to new developments and higher operational costs through the storage, conveying (including pumping) and treating of combined foul and surface water flows. The projects are regarded as development outputs due to the early stages of feasibility at the time of submission, critical unknown constraints include connectivity within the system to confirm GIS/modelling data and cross connection investigation, confirmation of contributing areas, limited feasibility to inform the capacity of the proposed receiving water course and required discharge consent or design feasibility and limited or no stakeholder engagement.</p> <p>Updated Text</p> <p>Throughout Northern Ireland many wastewater networks are hydraulically overloaded resulting in out of sewer flooding, unacceptable intermittent discharges (UIDs), restrictions to new developments and higher operational costs through the storage, conveying (including pumping) and treating of combined foul and surface water flows and associated carbon footprint. The named projects are regarded as development outputs due to the early stages of feasibility at the time of submission.</p> <p>Critical unknown constraints include connectivity within the system to confirm GIS/modelling data and cross connection investigation, confirmation of contributing areas, limited feasibility to inform the capacity of the proposed receiving water course and required discharge consent or design feasibility, and limited or no stakeholder engagement.</p> <p>Note that changes to original text in Annex T relate to improvements to technical accuracy of the original text, linkages to our Net Zero ambitions and improved grammar.</p>		
DEVELOPMENT OBJECTIVE TO CONFIRM SOLUTION SPEND IN PC21 &/or PC27		
PC21 only <input type="checkbox"/>	PC27 only <input type="checkbox"/>	PC21 and PC27 <input checked="" type="checkbox"/>
PROJECT SCOPE		
<p>Original Scope</p> <p>The estimated removal of 218.72 Ha of impermeable area that discharges storm water into the foul / combined sewerage network. The project needs have been identified in three strands:</p> <ol style="list-style-type: none"> 1. Historic DAP surface water separation opportunities. Six projects have been promoted for consideration (Kilkeel, Preistland Road – Bushmills, York Street – Belfast, Belleck, Foyle Street Londonderry and Cranfield). (Cranfield iPAC 1931 and Foyle Street – Londonderry iPAC 1210 detail is included within a separate business case, referenced within this document for completeness of the 12g Storm Separation programme.) 2. Opportunity for separation of surface water from the foul/combined network identified via GIS analysis or network field manager interview. 3. Opportunities developed in conjunction with works on the sewerage network 		

for other reasons where storm separation can be achieved at reasonable additional cost.

Updated Scope

The estimated removal of 218.72Ha impermeable area (with an amended target to be developed as part of the PC21 MTR) that discharges storm water into the foul / combined sewerage network. The project needs have been identified in three strands;

1. Initially, six projects have been identified from historic DAP studies for further investigation
 - a. Preistland Road, Kilkeel.
 - b. Bushmills
 - c. York Street, Belfast.
 - d. Belleek
 - e. Foyle Street Londonderry (iPAC 1210)
 - f. Cranfield. (iPAC 1931)
2. Development of an Infiltration and Ingress Management Strategy to efficiently and economically target the sources of I&I.
3. A digital system will be developed for the tracking of opportunity, through feasibility to intervention and benefits realisation.

COMMENTARY ON MATERIAL CHANGES TO SCOPE

After the first two years of PC21, it was identified that a change to strategy in this development output was needed. Opportunities for surface water direct ingress removal has been limited when ground truthed due to issues surrounding corporate records. Initial "quick wins" whereby our GIS records indicated a surface to foul/combined connection are only returning a 40% positive opportunity for direct ingress removal. The area connected to this is currently assumed and there has to be an initiation of further surveys and constructability to realise a constructable opportunity. There was also no linkage to wider Blue Green Infrastructure opportunities. Outside of the six named projects leading into PC21, there hasn't been any viable construction opportunities confirmed.

This called for a new approach – the Infiltration and Ingress (I&I) Management Strategy. In April 2023, NI Water initiated work on this strategy and the development output led by the Wastewater Strategy team to ensure linkages to strategic drivers, environmental regulatory drivers and capital planning for PC21/PC27. This is with a view to improvement of the success rate "on the ground" and consideration of economic and strategic drivers.

PROJECT OUTCOMES**Original Project Outcomes**

- Ecological and Environmental Impact – reduction in UID spills due to reduced flows within the sewerage network, recharging of urban water courses providing increased dilution and retention of storm water.
- Alignment with Strategic Aims and Objectives
- Sustainable Development – reduction in OPEX costs (and therefore electricity) of WwPS and WwTW including improvement in biological performance.
- Sustainable Development – increased capacity in the sewers allowing for future developments to be granted connections and creation of headroom capacity in system.

Updated Project Outcomes

Alignment with NI Water Strategic Aims and Objectives:

1. **Ecological and Environmental Impact** – reduction in UID spills due to reduced flows within the sewerage network, recharging of urban water courses providing increased dilution and retention of storm water. Contribution towards WFD River Basin Management Objectives.
2. **Net Zero and Climate Resilience**– reduction in OPEX costs and reduction in carbon footprint through reduced electricity consumption. Improvement to WwTW biological performance, particularly in activated sludge plants and adds resilience capacity for climate change.
3. **Development Constraints** – increased capacity in the sewers allowing for future developments to be granted connections and creation of headroom capacity in system.
4. **Customer** – improved customer impact through reduction of internal and external flooding and complaints around flushing of toilets, for example.
5. **Biodiversity** - with Blue Green Infrastructure opportunities and associated benefits that BGI has on communities.
6. **Statutory Requirements** – contributes to new and emerging statutory Legislation and policies related to Wastewater Regulation Reform (WWRR):
 - a. Environment Act and Urban Wastewater Treatment Directive (recast)
 - b. WwTW Flow Compliance non-compliance management plans
 - c. EDM Spill reporting and measures to reduce
 - d. Long Term Wastewater Catchment Planning (DWMPs and/or IUWWMPs)

The key deliverables are:

- Draft Business Case for PC21 SWS
- Infiltration and Ingress (I&I) Management Strategy
- Prioritised list of capital projects

COMMENTARY ON MATERIAL CHANGES TO PROJECT OUTCOMES

Wastewater Regulation reform (WWRR) is preparing NI Water for a new Environmental Regulatory regime in PC27. This is to bring NI Water in line with the rest of the UK in terms of CSO spill reporting, flow compliance at WwTW and emerging legislation to reduce the harm of wastewater on receiving waters. The new approach will bring us in line with other UK mainland utilities in their ambition to dramatically reduce CSO spills in the long term, understand and manage our networks more efficiently, reduce our carbon footprint, and protect receiving waters from harm. I&I Management plays a key part in those long term plans.

UR MONITORING EXPECTATIONS					
<p>Progress on the delivery of this objective will be monitored and reported on through the annual cost and performance report process as a minimum. In addition we expect NI Water to:</p> <ul style="list-style-type: none"> • Develop and submit an updated programme for the delivery of this objective. • Engage with UR staff on the timing of additional engagement, reviews and the determination of any outcomes flowing from the successful completion of the development stages. • Engage with NIEA and other stakeholders on needs, options, priorities and the programme for delivery as required. 					
HOW UR MONITORING EXPECTATIONS HAVE BEEN FULFILLED					
<p>UR has been advised of progress in annual cost and performance report process. Submissions in 2022 completed and current report highlights progress on DO to date.</p> <p>To date, NI Water have removed 3.2 Ha at a cost of £4.8m (£1.5m/Ha). NI Water believe a more efficient approach is required and have commissioned a consortium of framework consultants to develop and Infiltration and Ingress (I&I) Management Strategy. A programme for this piece of work is underway with key next steps identified further in this report.</p> <p>NI Water are to arrange a meeting with UR staff to discuss the change in approach to increase efficiency. It is proposed that this will be through the MTR process and PC27 working groups in advance of March 2025.</p> <p>NI Water are in the process of agreeing the policies related to CSO spill reporting and Flow compliance with NIEA, of which I&I Management are a cornerstone.</p>					
PROGRAMME					
<p>A project programme is being developed with framework consultants based on the key milestones for delivery for AIR24 further in this report.</p> <p>See Master DO Programme v0 dated 07/07/23.</p>					
KEY MILESTONES FOR DEVELOPMENT OBJECTIVE					
Description Key PC21 FD DO Milestones	FD21 Annex T Milestone Target Date	Status Vs FD21 Target	Current Mileston e Target Date	Status Vs Current Target	Commentary on Material Milestone Date Changes <u>AND / OR</u> Reasons for any material Delay
The development of the storm separation programme is ongoing throughout PC21 (Individual named projects have development milestones, please refer to	Mar 27	On Target	N/A	N/A	Internal NIW discussions are seeking agreement with the UR to change this milestone to the milestone "establish a strategy for I&I management..." as the current approach is not yielding significant progress and efficiency.

the Storm separation business case (1790 et al)					
Establish a strategy for I&I Management across all projects and functions. Including a benchmark for economic level of I&I intervention and prioritise investigations/investment	N/A	N/A	2024	On target	Replace the Annex T DO key milestone with this milestone and agree this with the UR.
Submit updated programme to UR	N/A	N/A	2021-27	Ongoing	
Engage with UR.	N/A	N/A	2021-27	Ongoing	
Engage with NIEA.	N/A	N/A	2021-27	Ongoing	
Establish a methodology for storm separation across all projects and functions	N/A	N/A			Milestone to be removed rationalised within the I&I Strategy milestone
Understand the budget for storm separation only projects	N/A	N/A			Milestone to be removed rationalised within the I&I Strategy milestone
Identify a benchmark for economic storm separation and prioritise	N/A	N/A			Milestone to be removed rationalised within the I&I Strategy milestone
A1 business case for year 3 and 4 of PC21 – named schemes	N/A	N/A	Jun 23	On target	
Delivery of capital programme	N/A	N/A	2021-27	Ongoing	

Development of a digital Platform to track opportunity through to benefits realisation	N/A	N/A	2021-27	Ongoing	Suggested new target to better manage all I&I activity across the business
KEY MILESTONES FOR SOLUTIONS INVESTMENT					
Completion of the investment to achieve the target of 218.72Ha	Mar 27	On Target	Mar 27	On Target	Suggest revising target and agree with UR for MTR (Sept 23). CAPEX Solutions to be delivered for PC27
EXPENDITURE (See Also Table DO1 below)					
FD21 Annex T Estimated Total Cost of DO (2018/19 prices)	Forecast Cost of DO (Nominal prices)		Commentary on Material Total Cost Changes for DO		
£0.57m (18/19 prices)	£2.647m (nominal prices)		Increase in funding to realise Surface Water Management opportunities as ground truthing required and extra funding to realise Blue Green Infrastructure opportunities.		
PC21 FD Estimated Cost of Solution (18/19 prices)	Forecast Cost of Solution (Nominal prices)		Commentary on Material Solution Cost Changes		
£14.3m (18/19 prices)	£18.928m (nominal prices)		No change other than inflationary increase and currently still sufficient for updated scope.		
ACTIVITY COMPLETED TO DATE AND OUTCOMES TO DATE (MARCH 2023)					
<p>An internal meeting took place in March 2023 to review progress and efficiency against the Development objective to date between Wastewater Strategy, Capital Delivery, Operations and Developer Services. It was agreed that Wastewater Strategy should take the lead in this programme introducing a change in approach to improve success rate and linkages to wider Wastewater Strategy priorities.</p> <p>NI Water subsequently initiated the Infiltration and Ingress Management Strategy with the aim to have this completed and agreed by March 2024. It has been agreed that continual engagement is the best way forward for increasing the success rate of this development objective and linking it to wider strategic objectives and tracking those in a digital platform. Work on the digital platform for tracking the delivery has commenced and implementation into the wider business is underway.</p> <p>A refresh of the business case is being undertaken to complement the new approach to targeting the problem. This will be developed for the MTR submission. In summary, the new approach will:</p>					

- Re-prioritise the areas for investigation by incorporating new and existing datasets and linking these to wider wastewater strategy priorities and capital planning.
- Introduce cost beneficial efficiency indicators to ensure greater benefits are realised and that fieldwork is targeted.
- Trail innovation to increase efficiency of survey work and ground truthing. Other innovative data analysis techniques will help to establish the type of hydraulic stress in a catchment.
- Digital platform creation as the one centralised version of the truth for I&I management so capital interventions and benefits can be tracked.
- Measuring and setting pre and post intervention indicators in a catchment so that the multitude of benefits are captured and not measuring success on a hectare removed basis as the programme feeds into long term wastewater strategic planning and scenario development.

Engagement with NIEA is ongoing through various regulatory forums as to how this development objective is helping NI Water manage hydraulic stress.

Update on Schemes set out in Annex T

The following schemes are being assessed:

Named Scheme	Target (Ha)	Cost (£m)	Status
Belleek	?	?	Investigations underway
Kilkeel	?	?	ECI for cost effectiveness
Bushmills	1.0	0.489	(IPAC 1943) Construction (ECI)
York Street (Belfast)	-	-	Not cost effective – abandoned.
Foyle Street	1.8	2.048	(IPAC 1210) Construction (ECI)
Cranfield	1.0	2.304	(IPAC 1931) Construction (ECI)
Totals	3.8	4.841	

In total, to date, NI Water are estimating 3.8 Ha removed at a cost of £4.8m (£1.25m/Ha). Based on this current approach, NI Water will not deliver the 218Ha target in PC21 but will engage with the Regulator to establish a revised target for the PC21 MTR. However, with a change strategy, NI Water are hoping to improve overall efficiency of the hectare removal rate, whilst contextualising it with other strategic drivers and benefits.

Some projects, such as the Ravenhill Road scheme, have removed 3.47Ha of surface water ingress but cost has been difficult to breakdown as they were a secondary benefit to a larger conveyance capacity upgrade.

It is envisaged that further funding may be required when a coherent strategy is realised around the viability of and efficiency of managing surface water ingress. For example, special projects, requiring large CAPEX in Belfast and in Culmore may have to be funded outside of this business case and associated development output.

PLANNED NEXT STEPS FOR DELIVERY			
<p>The next steps for this development output is set out below:</p> <ul style="list-style-type: none"> • The development of an Infiltration and Ingress Management Strategy • Prioritisation of areas linked to wider Wastewater Strategy objectives • Identify a benchmark for economic I&I removal and prioritise • A programme of survey work and creation of standardised survey specification and data returns – stored centrally. • The further development of a common digital platform for tracking of opportunities through to delivery and intervention benefits. • Further investigation, feasibility, ECI and economic appraisal on identified schemes to feed into business cases for year 3 and 4 named schemes. • Ascertain the conceptual feasibility of BGI interventions as a management technique. • Measure baseline and performance improvement metrics pre and post construction to ascertain wider benefits of I&I management. 			
PROPOSED MAINTENANCE EXPENDITURE / ADDITIONAL OPEX from CAPEX			
<ul style="list-style-type: none"> • To be confirmed with solutions 			
IMPACT OF SCOPE / PROGRAMME CHANGES ON CAPITAL DELIVERY / OUTPUTS PROGRAMME			
<p>By adopting a strategy that links all data sources, instrumentation and surveys alongside an economic analysis of I&I should lead to a more efficient and cost effective surface water management programme. This should lead to a higher success rate in ground truthing potential schemes and scope certainty of the proposed construction outputs. This will help achieve the capital delivery/outputs programme and linked the programme to other wastewater strategic drivers.</p>			
IMPACTS ON CAPITAL OUTPUTS PROGRAMME LINKED TO TABLES 40, 40a & 40b			
Links to Tables Completed	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Comments
RISKS & ISSUES ASSOCIATED WITH THIS DEVELOPMENT OBJECTIVE			
<p>Risks include:</p> <ul style="list-style-type: none"> - Data availability and accuracy - Delay of ground truthing programme due to contractor resource issues - Delay of ground truthing programme due to external issues (i.e. traffic management permits from DFI Roads) - Availability of hardware for monitoring sewers (wide spread demand in UK due to recent statutory changes) <p>A risk register will be developed for the Strategy.</p>			
WIDER BENEFITS OF THIS DEVELOPMENT OBJECTIVE			
<p>Wider benefits include:</p> <ul style="list-style-type: none"> - Community engagement and education with potential Blue Green Infrastructure schemes - Wider stakeholder collaboration opportunities 			
LINKAGE TO OTHER DEVELOPMENT OBJECTIVES			
<p>There is some linkage to other Development Objectives, as follows:</p> <ul style="list-style-type: none"> • Section 10 – Event Duration Monitors WwPS/CSOs • Section 13 – Real Time Network Modelling 			

Development Objective – Expenditure Summary**Table DO1 Expenditure on Development Objective (Nominal Prices)**

Category	Spend to End March 2023 (£m)	Anticipated Future Spend (£m)	Anticipated Total DO Spend (£m)	Comment
<i>Civil</i>				
<i>M&E</i>				
<i>Materials / Equipment</i>				
<i>NIE</i>				
<i>Lands</i>				
<i>Site Investigation</i>	0.101	1.792	1.893	KI674 + KI745
<i>Consultancy</i>	0.000	0.754	0.754	TBC
<i>Pilot Studies</i>				
<i>Add Others as necessary</i>				
Totals	0.101	2.546	2.647	
PC21 FD Projected Spend on Development Objective			2.647	

DEVELOPMENT OBJECTIVE [DO]		
Ref	Development Objective	Sub-Programme
13	Real Time Network Modelling	12z
GOVERNANCE		
Directorate	SRO	Project Lead
AD		
REASON DEVELOPMENT OBJECTIVE IS NECESSARY		
Control, monitoring and automation of the sewerage network, and creating a digital twin via live network modelling, has the potential to maximise the capacity of the sewerage network, reducing out of sewer flooding, pollution and blockages, it also has the potential to assist NIW with operational maintenance and targeted intervention, providing efficiency through targeted maintenance investment.		
DEVELOPMENT OBJECTIVE TO CONFIRM SOLUTION SPEND IN PC21 &/or PC27		
PC21 only <input type="checkbox"/>	PC27 only <input type="checkbox"/>	PC21 and PC27 <input checked="" type="checkbox"/>
PROJECT SCOPE		
Undertake trial studies to ascertain the benefits and mechanisms to allow NI Water to transition toward real time network modelling in specific networks.		
COMMENTARY ON MATERIAL CHANGES TO SCOPE		
N/A		
PROJECT OUTCOMES		
<p>Original Outcome</p> <ul style="list-style-type: none"> Maximise the capacity of the sewerage network Reduction in out of sewer flooding, pollution and blockages Assist NIW with operational maintenance and targeted intervention, providing efficiency through targeted maintenance investment <p>Replace outcome:</p> <ul style="list-style-type: none"> Assist NIW with operational maintenance and targeted intervention, providing efficiency through targeted maintenance investment <p>With outcome:</p> <ul style="list-style-type: none"> Collaboration with Operations to drive towards pro-active maintenance, targeted intervention and operational efficiencies <p>Add the following outcomes:</p> <ul style="list-style-type: none"> Explore potential for Ingress and Infiltration (I&I) reduction Asset analysis (i.e. run pump times and failures) for asset health monitoring <p>A key deliverable will be a technology assessment report, benefits assessment and business case for PC27 and digital implementation strategy if deemed essential to address strategic planning risks.</p>		
COMMENTARY ON MATERIAL CHANGES TO PROJECT OUTCOMES		
The project has been set up to look holistically with all the internal stakeholders to realise benefit of "smart networks" and live modelling across all business functions. This has led to a drive towards exploring if NI Water can realise more benefits and achieve a wider range of project outcomes to satisfy strategic objectives.		
UR MONITORING EXPECTATIONS		
Progress on the delivery of this objective will be monitored and reported on through the annual cost and performance report process as a minimum. In addition we expect NI		

Water to:					
<ul style="list-style-type: none"> • Develop and submit an updated programme for the delivery of this objective. • Engage with UR staff on the timing of additional engagement, reviews and the determination of any outcomes flowing from the successful completion of the development stages. An update on the results of the studies/trials is likely to be required as part of the engagement process. 					
HOW UR MONITORING EXPECTATIONS HAVE BEEN FULFILLED					
UR has been advised of progress to date in AIR22 return. During AIR22 this project was to be started in 2024. This is now going to be taken forward earlier, in April 2023, with programmes to be developed by June 2023.					
PROGRAMME					
A detailed programme for the trials is currently in development, for completion in June 2023. See Master DO Programme v0 dated 07/07/23.					
KEY MILESTONES FOR DEVELOPMENT OBJECTIVE					
Description Key PC21 FD DO Milestones	FD21 Annex T Milestone Target Date	Status Vs FD21 Target	Current Milestone Target Date	Status Vs Current Target	Commentary on Material Milestone Date Changes <u>AND</u> / <u>OR</u> Reasons for any material Delay
Estimated NIW Stage A1 Options and Business Case Complete	Mar 23	Delayed	Mar 24	On Target	This DO was originally deferred to 2025 but brought forward a year as it is deemed essential to inform PC27.
Update UR with methodology and how it will be applied	N/A	N/A	Mar 24	On Target	
Develop and submit an updated programme	N/A	N/A	Mar 24	On Target	
Update UR on the results of the studies/trials	N/A	N/A	Mar 25	On Target	
Review Lame system for learning opportunities	N/A	N/A	Mar 25	On Target	
MILESTONES FOR SOLUTION DEVELOPMENT					
Completion of the investment to provide pilot projects	Mar 27	On Target	Mar 27	On Target	

within the sewerage network					
EXPENDITURE [See Also Table DO1 below]					
FD21 Annex T Estimated Total Cost of DO (2018/19 prices)	Forecast Cost of DO (Nominal prices)		Commentary on Material Total Cost Changes for DO		
£0.096m	£0.127m		No change other than inflationary increase. This will be reviewed in AIR 24 after pilots.		
PC21 FD Estimated Cost of Solution (2018/19 prices)	Forecast Cost of Solution (Nominal prices)		Commentary on Material Solution Cost Changes		
£0.71m	£0.941m		No change other than inflationary increase This will be reviewed in AIR 24 after pilots		
ACTIVITY COMPLETED TO DATE AND OUTCOMES TO DATE (MARCH 2023)					
Since the Final Determination, no activity has been undertaken with respect to DO13 until March 2023. In March 2023 the Wastewater Strategy team has taken over responsibility for this DO. A procurement exercise was undertaken in March 2023 to appoint consultancy support to deliver on this output. A scoping exercise will be commenced for trial catchments by June 2023.					
PLANNED NEXT STEPS FOR DELIVERY					
It has been agreed that Wastewater Strategy will lead on this DO. Consultancy support was appointed in April 2023 and work will begin on strategy and scoping of trial catchments. Instrumentation of the trial catchments will commence in August 2023.					
PROPOSED MAINTENANCE EXPENDITURE / ADDITIONAL OPEX from CAPEX					
It is envisaged that there may be some OPEX from CAPEX and this will be determined during solution development.					
IMPACT OF SCOPE / PROGRAMME CHANGES ON CAPITAL DELIVERY / OUTPUTS PROGRAMME					
No impact of scope/programme changes on capital delivery as no solutions exist yet.					
IMPACTS ON CAPITAL OUTPUTS PROGRAMME LINKED TO TABLES 40, 40a & 40b					
Links to Tables Completed	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Comments N/A as no solutions exist		
RISKS & ISSUES ASSOCIATED WITH THIS DEVELOPMENT OBJECTIVE					
Risks include: <ul style="list-style-type: none"> • Delay of ground truthing programme due to contractor resource issues • Delay of ground truthing programme due to external issues (i.e. traffic management permits from DFI Roads) • Availability of hardware for monitoring sewers (widespread demand in UK due to recent statutory changes) 					
WIDER BENEFITS OF THIS DEVELOPMENT OBJECTIVE					
DO13 can link in with DO12. With increased instrumentation in the sewer network, advances in rainfall application to assets etc. we can analyse this data to not only give us a real time view of our assets but also insights into where we have excess flows in the network which could be from I&I sources. This can also lead to increased model confidence due to more data coverage and therefore increased confidence in the capital					



solutions recommended from modelling.
LINKAGE TO OTHER DEVELOPMENT OBJECTIVES
There is some linkage to other Development Objectives, as follows: <ul style="list-style-type: none"> • Section 12 – Storm Water Separation • Section 10 - EDMs

Development Objective – Expenditure Summary

Table DO1 Expenditure on Development Objective (Nominal Prices)

Category	Spend to End March 2023 (£m)	Anticipated Future Spend (£m)	Anticipated Total DO Spend (£m)	Comment
Civil	0			
M&E	0			
Materials / Equipment	0			
NIE	0			
Lands	0			
Site Investigation	0			
Consultancy	0	£0.127	0.127	
Pilot Studies	0			
Add Others as necessary	0			
Totals	£0	0.127	0.127	
PC21 Projected Spend on Development Objective			0.127	

DEVELOPMENT OBJECTIVE [DO]		
Ref	Development Objective	Sub-Programme
14	Urban Drainage Modelling - Live Models for IOC	20g
GOVERNANCE		
Directorate	SRO	Project Lead
AD		
REASON DEVELOPMENT OBJECTIVE IS NECESSARY		
Develop and cost a methodology to allow NI Water to transition to Real Time network modelling (through trial studies) to facilitate identification of problems before they manifest in flooding or pollution incidents.		
DEVELOPMENT OBJECTIVE TO CONFIRM SOLUTION SPEND IN PC21 &/or PC27		
PC21 only <input checked="" type="checkbox"/>	PC27 only <input type="checkbox"/>	PC21 and PC27 <input type="checkbox"/>
PROJECT SCOPE		
Develop and cost a methodology to allow NI Water to transition to Real Time network modelling to support the IOC. This will allow NI Water to better understand its network, create opportunities to optimize network operation and allow better informed decisions before and during incidents.		
This project is a R&D project in order to identify potential opportunities through the use of Artificial Intelligence and its applicability to the Wastewater pumping system.		
COMMENTARY ON MATERIAL CHANGES TO SCOPE		
During phase one of the project, the supplier requested a change to the telemetry system to enable a real-time solution due to latency within the existing system. This occurred August 2022 and a new trial period commenced on the 12/09/2022.		
PROJECT OUTCOMES		
This may allow a more proactive approach and provide agile decision making based on dynamic scenarios. It will also help us understand our network better, create opportunities to optimise network operation and allow better informed decisions during operation of the Assets.		
PC21 FD project outcome will form the basis for the further decision-making process. Changes were made to the system; the trial was recommenced. Optimization of the system was undertaken; results and findings will be presented at the end of the trial period.		
The key outcome of this Development Objective is the development of situational awareness dashboards and alerting systems for IOC responses from Real Time Network Modelling.		
COMMENTARY ON MATERIAL CHANGES TO PROJECT OUTCOMES		
N/A		
UR MONITORING EXPECTATIONS		
Progress on the delivery of this objective will be monitored and reported on through the annual cost and performance report process as a minimum. In addition, we expect NI Water to:		
<ul style="list-style-type: none"> • Develop and submit an updated programme for the delivery of this objective. • Engage with UR staff on the timing of additional engagement, reviews and the determination of any outcomes flowing from the successful completion of the development stages. Provision of a copy of the methodology and an update on how NI Water intends to apply it is likely to be required as part of the engagement process. 		

HOW UR MONITORING EXPECTATIONS HAVE BEEN FULFILLED					
<ul style="list-style-type: none"> Met with the Reporter for AIR 22 Updated progress and risks Identified key communication issue with system and modified timeline Outlined expectations for the 23/24 financial year Flow volumes to the works and energy efficiencies will be monitored and outcomes presented Engagement with UR on Methodology etc – NIW will carry out changes to the system, monitor and adjust configuration as necessary & publish report. Following the outcomes of this phase we will engage with the UR. A date for engagement with the UR will be determined when the trial is complete and the trial outcomes are known. 					
PROGRAMME					
See Master DO Programme v0 dated 07/07/23.					
KEY MILESTONES FOR DEVELOPMENT OBJECTIVE					
Description Key PC21 FD DO Milestones	FD21 Annex T Milestone Target Date	Status Vs FD21 Target	Current Milestone Target Date	Status Vs Current Target	Commentary on Material Milestone Date Changes <u>AND</u> / <u>OR</u> Reasons for any material Delay
Feasibility (desktop) study	N/A	N/A	Jan 21	Complete	<p><i>Milestone 1.</i></p> <p>See Supplier feasibility report</p>  <p>Section 14_Milestone_1_FLOW UK NIW Sol.</p>
Initial test running	N/A	N/A	Oct 21	Complete	<p><i>Milestone 2.</i></p> <p>See minutes 02/09/2021 progress meeting</p>  <p>Section 14_Milestones 2-5_Ev</p>
Optimise solution and identify constraints	N/A	N/A	Mar 22	Complete	<p><i>Milestone 3.</i></p> <p>See flow north coast monitoring ww team 03/02/2022</p>
Identify solution to communication problem	N/A	N/A	May 22	Complete	<p><i>Milestone 4.</i></p> <p>See 25/08/2022 plc discussions</p>
New comms solution	N/A	N/A	Aug 22	Complete	<p><i>Milestone 5.</i></p> <p>See e-mail</p>

installed					14/09/2022
Batch 1 – Two catchments	2023		2023	Reliant on outcome of trial	Decision will be based on trial outcome
Batch 2 – Three catchments	2024		2024	Reliant on outcome of trial	Decision will be based on trial outcome
Submit updated programme to UR	N/A	N/A	Oct 22	Reliant on outcome of trial	Deferred until more outputs are available
Engage with UR staff	N/A	N/A	Dec 22	Reliant on outcome of trial	Deferred until more outputs are available
Provide UR with update on the results of the studies/trials. North Coast development project combining real-time data, network model and machine learning application	N/A	N/A	Q1 23/24 financial year	On target	Update meeting delayed due to pump failure at key asset – this is under investigation
New Technology Assessment and Recommendations Report	N/A	N/A	Q3 23/24 financial year	On target	New milestone in AIR23 (key deliverable on dashboard)
Estimated NIW Stage A1 Options and Business case complete	N/A	N/A	Q3 23/24 financial year	Reliant on outcome of trial	Was Mar 23. Initial analysis will be conducted in Q3 23/24 due to pump failure noted above
KEY MILESTONES FOR SOLUTION INVESTMENT					
Real Time Network Modelling	TBC	N/A	Q3 23/24 financial year	Reliant on outcome of trial	Analysis of trial to establish benefits
EXPENDITURE [See Also Table DO1 below]					
FD21 Annex T Estimated Total Cost of DO (2018/19 prices)	Forecast Cost of DO (Nominal prices)		Commentary on Material Total Cost Changes for DO		
£0.6m	£0.804m, which is £0.6m indexed to nominal prices (cost TBD – based on trial)		N/A		

PC21 FD Estimated Cost of Solution (2018/19 prices)	Forecast Cost of Solution (Nominal prices)	Commentary on Material Solution Cost Changes	
TBC	TBC	Solution cost is unknown at this stage	
ACTIVITY COMPLETED TO DATE AND OUTCOMES TO DATE (MARCH 2023)			
<ul style="list-style-type: none"> • Feasibility assessment started • Deployment of test solution in North Coast zone – changes required to PLCs at local sites and server installed in NI Water ICT environment • Assessment of constraints – key outcome – changes requested by the A.I. system are not being transferred at correct time to local site – new radio requirement identified • P.O. placed for faster radio system and install currently being scheduled with site teams • Install of radios completed August 2022 • New test commenced 12/09/2022 			
A progress tracker showing individual tasks is shown below:			
Title	Start Date	End Date	Type
Feasibility Study (FLOW Simulation)	09/04/2020	28/01/2021	Study
FLOW Implementation	01/12/2020	28/07/2021	Milestone
Subscription Active	04/08/2021	03/08/2022	Milestone
FLOW active	10/10/2021		Milestone
Watchdog functionality integrated with PLC	12/10/2021		PLC change
Solved FTP server down	17/11/2021	30/11/2021	PLC change
Assessment of data telemetry delays	15/03/2022		Data analysis
Assessment conclusion on time delay	22/03/2022		Data analysis new approach need
Proposal for new comms	20/04/2022		Radios and new antenna
	23/05/2022		Discussion had between RDH AND NIW
Proposal out for consultation			
New radios agreed upon	30/05/2022		PO raised
PO SIGNED-OFF	06/06/2022		Radio order placed
Install planned	18/07/2022		Install commenced
Commissioning	25/07/2022	01/08/2022	System operational
Simulation re-started under new conditions	15/08/2022	03/02/2023	Implementation, analysis of new data set and performance
Review of data and recommendations of possible roll out to further WwTP site	03/02/2023	01/03/2023	Did the study meet goals and objectives
PLANNED NEXT STEPS FOR DELIVERY			
Due to the latency with the original communications, the trial will be extended until Q4 23-24, Financial year			
PROPOSED MAINTENANCE EXPENDITURE / ADDITIONAL OPEX from CAPEX			
Ongoing subscription likely to be £45k/year per zone.			
IMPACT OF SCOPE / PROGRAMME CHANGES ON CAPITAL DELIVERY / OUTPUTS PROGRAMME			
This project is to assess the feasibility of this platform and the applicability to NI Water. No further capital projects have been progressed at this stage.			

IMPACTS ON CAPITAL OUTPUTS PROGRAMME LINKED TO TABLES 40, 40a & 40b			
Links to Tables Completed	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Comments N/A – no capital projects as yet
RISKS & ISSUES ASSOCIATED WITH THIS DEVELOPMENT OBJECTIVE			
Key risks are as follows <ul style="list-style-type: none"> • Cost / benefit analysis may indicate that value is not achievable • Telemetry system is not suitable and will require significant upgrades – this is a likely outcome if the solution is expanded to other areas. Note that telemetry constraints have now been resolved for the trial area • Peak flow reduction may not be achieved 			
WIDER BENEFITS OF THIS DEVELOPMENT OBJECTIVE			
Solution may support the reduction of maximum flows to the WwTW (to be proven) Additional analysis may be used from the system to identify potential asset failures – e.g. pump efficiencies.			
The information from the trial may be used to support other projects across the company.			
LINKAGE TO OTHER DEVELOPMENT OBJECTIVES			
There is a linkage to DO 13 (Real time network modelling) – further development work on this DO will establish the linkage and interdependencies.			

Development Objective – Expenditure Summary

Table DO1 Expenditure on Development Objective (Nominal Prices)

Category	Spend to End March 2023 (£m)	Anticipated Future Spend (£m)	Anticipated Total DO Spend (£m)	Comment
<i>Civil</i>				
<i>M&E</i>				
<i>Materials / Equipment</i>		£0.274m	£0.274m	Radio communication and pumps
<i>NIE</i>				
<i>Lands</i>				
<i>Site Investigation</i>				
<i>Consultancy</i>				
<i>Pilot Studies</i>	£0.170m		£0.170m	
<i>Add Others as necessary</i>	£0.045m	£0.315m	£0.360m	For subscription costs
Totals	£0.215m	£0.589m	£0.804m	
PC21 Projected Spend on Development Objective			£ 0.804m	Estimating £0.804m which is £0.6m from Annex T indexed to nominal prices

DEVELOPMENT OBJECTIVE [DO]		
Ref	Development Objective	Sub-Programme
15	Innovation Initiatives	20
GOVERNANCE		
Directorate	SRO	Project Lead
AD		
REASON DEVELOPMENT OBJECTIVE IS NECESSARY		
<p>Innovation projects are required to ensure NI Water keep up to date with new and efficient techniques. Innovation projects by their nature are difficult to identify in advance but NI Water are continually striving to be innovative and use new techniques that may provide the desired efficiencies. The funding being applied for the PC21 period is to pilot and trial new technologies to assess their benefits and potential integration into business as usual. The funding will not be used for full scale integration.</p>		
DEVELOPMENT OBJECTIVE TO CONFIRM SOLUTION SPEND IN PC21 &/or PC27		
PC21 only <input checked="" type="checkbox"/>	PC27 only <input type="checkbox"/>	PC21 and PC27 <input type="checkbox"/>
PROJECT SCOPE		
<ul style="list-style-type: none"> To develop a more focused Innovation Programme to cover key areas identified by the business as being critical and linked to NI Water's vision and values. To be more proactive and seek solutions to specific questions. Innovation initiatives in the areas of: Capital Efficiencies; Operational Efficiencies; and Future Innovation. Pilot studies and trials of new technologies to assess their benefits and potential integration into business as usual. 		
COMMENTARY ON MATERIAL CHANGES TO SCOPE		
N/A		
PROJECT OUTCOMES		
<ul style="list-style-type: none"> Capital Efficiencies -To identify and evaluate processes that can provide capital efficiencies through trials and pilot projects. Operational Efficiencies- To identify and evaluate processes that can provide OPEX efficiencies. Future Innovation - innovations that will take place over the PC21 period and in particular areas that are not directly related to efficiencies. NI Water will concentrate efforts on those innovative initiatives likely to benefit us the most. 		
COMMENTARY ON MATERIAL CHANGES TO PROJECT OUTCOMES		
N/A		
UR MONITORING EXPECTATIONS		
<p>Progress on the delivery of this objective will be monitored and reported on through the annual cost and performance report process as a minimum. In addition, we expect NI Water to:</p> <ul style="list-style-type: none"> Develop and submit an updated programme for the delivery of this objective. Engage with UR staff on the timing of additional engagement, reviews and the determination of any outcomes flowing from the successful completion of the development stages. Provision of an update on the focus areas identified, innovation programme (once developed) and the outcome of subsequent trials and pilots is likely to be required as part of the engagement process. 		

HOW UR MONITORING EXPECTATIONS HAVE BEEN FULFILLED					
UR advised of progress in Annual Information Returns 2022 and 2023. NI Water has no specific plans to engage with the UR but we will do so as required.					
PROGRAMME					
See Master DO Programme v0 dated 07/07/23.					
KEY MILESTONES FOR DEVELOPMENT OBJECTIVE					
Description Key PC21 FD DO Milestones	FD21 Annex T Milestone Target Date	Status Vs FD21 Target	Current Milestone Target Date	Status Vs Current Target	Commentary on Material Milestone Date Changes AND / OR Reasons for any material Delay
Submit updated programme to UR	TBC	Complete	July 22	N/A	N/A
Engage with Regulators	TBC	Complete	July 22	N/A	Meetings held with Regulators at several WTW with pilot trials. Innovation Programme shared in AIR Returns
Update UR on focus areas, innovation programme and trials/pilots	TBC	Complete	July 22	N/A	N/A
Innovation strategy workshop to review key business areas and identify opportunities to be progressed during PC21	Feb/Mar 20	Complete Workshop held 10/06/2022	June 2022	N/A	Covid delays and slower recruitment than anticipated during PC21 period. The November 2021 EC/Board Risk Committee helped focus innovation in NI Water.
Obtain Board approval for innovation "focus areas"	April/May 20	Complete	November 2021 and 2022	N/A	Presentations made on NI Water Innovation to

					EC/Board Risk Committee in Nov 21 & 22.
Develop Innovation Programme for 2021–23 comprising list of specific innovation trials and pilots to cover first two years of PC 21	Oct 20	Complete	No change	N/A	N/A
Prepare individual pilot and trial project business cases	TBC	On-Going	No change	N/A	N/A
Tender of approved pilot and trial projects	TBC	On-Going	No change	N/A	N/A
On-site trials and evaluation of results and benefits	TBC	On-Going	No change	N/A	N/A
Annual review of outputs from programme of pilots/trials by the Asset Delivery Director	Dec 22	Delayed	April 23	Complete	It was decided to move this meeting to the end of the financial year rather than the end of the calendar year. Otherwise the activity is complete with no impact on the Innovation Programme.
KEY MILESTONES FOR SOLUTION INVESTMENT					
Roll-out of successful pilot projects. (As dictated by detailed programme)	TBC	N/A	July 22 and 23	N/A	Programme being rolled out and shared in AIR returns.

EXPENDITURE [state cost base for all costs e.g. FY18/19 – See Also Table DO1 below]		
FD21 Annex T Estimated Total Cost of DO (2018/19 prices)	Forecast Cost of DO (Nominal Prices)	Commentary on Material Total Cost Changes for DO
£2.22m	£2.84m	-
PC21 FD Estimated Cost of Solution (2018/19 prices)	Forecast Cost of Solution (Nominal Prices)	Commentary on Material Solution Cost Changes
TBC	TBC	-
ACTIVITY COMPLETED TO DATE AND OUTCOMES TO DATE (MARCH 2023)		
<p>Engage with Regulators</p> <p>During PC21 NI Water has engaged with regulators such as the Drinking Water Inspectorate via regular compliance meetings and updated them on Pilot WTW projects and has continued to meet with the NIEA / NI Water Investment Group which covers initiatives such as innovative IEM modelling and innovative blue/green pilot solutions.</p> <p>Furthermore, the PC21 Environmental Quality Group has been re-established and meets to discuss the wastewater programme notably infrastructure and UIDs. This will involve discussion of sustainable and cost proportionate wastewater capital solutions, their catchment context in terms of environmental performance outcomes in the receiving environment as informed by Integrated Environmental Modelling (IEM) e.g., in Dundrum Bay.</p> <p>Innovation strategy workshop to review key business areas and identify opportunities to be progressed during PC21.</p> <p>A review was completed during 2021 - "Bringing Innovation Out of The Shadows and associated Case Studies (November 2021)." The Innovation Review identified focus areas and the findings of the Innovation Review were placed on NI Water's external website in July 2022.</p> <p>A workshop was held on 10th June 2022 to review Wastewater Innovation Strategy. It identified priorities within the 4 main asset types.</p> <p>Obtain Board approval for innovation "focus areas".</p> <p>As directed by the NI Water business the innovation assessment and focus areas were presented to the EC Risk Committee in November 2021 and an update was provided in November 2022.</p> <p>Develop Innovation Programme for 2021 – 2023 comprising list of specific innovation trials and pilots to cover first two years of PC 21</p> <p>The target completion dated for this objective has been revised to Dec 2023. NI Water staff were recruited as Efficiency and Innovation Managers in April and June 2022.</p> <p>An innovation dashboard has been developed to capture and monitor Innovation projects that form part of the "Innovation Programme" being led by the Water and Wastewater Efficiency and Innovation teams. In addition, it is anticipated that this dashboard will also capture other innovative projects being delivered within the business.</p> <p>Given the nature of Innovation, this dashboard is regularly updated, both to include new processes and equipment for inclusion within the Innovation Programme, but also to reject</p>		

those items that on further investigation do not fit with business needs.

Prepare individual pilot and trial project business cases.

Ongoing throughout the PC21 period. Individual pilots and trials have been progressed within the capital programme and have used early contractor involvement and some small technology trials have been at no cost to NI Water.

Tender of approved pilot and trial projects

This is dictated by detailed programme and is ongoing throughout the PC21 period. Company frameworks and procurement processes have been followed as required by the programme and followed NI Water governance.

On-site trials and evaluation of results and benefits

(Within two months of trial completion)

Several pilots and trials have been successfully completed by Efficiency and Innovation staff in Investment Management and used to inform innovative NI Water capital solutions for investment during PC21 and in PC27, particularly in water non-infrastructure.

Estimated DO15 costs associated with planned innovative pilot trials aimed at delivering Capex and Opex efficiencies via new technologies and optimization assessments are presented in the Solution Investment Table below. The results of these trials / studies will be reported on their completion.

Annual review of outputs from programme of pilots / trials by the Asset Delivery Director

There are regular meetings held with the AD Director and Head of Asset Management on Innovation and a formal review with the AD Director is held at the end of each financial year. This year's meeting was held on 24th April 2023.

See Table Below on next page for Activities Completed to Date.

NB This is the Innovation Programme

Description	Reason for Doing	Original Target Date	Status vs Original Target Date	Original Cost Estimate	Current Target Date	Status vs Current Target Date	Current Estimated Cost/Spend	Comments
Anney's Well Borehole.	To evaluate the performance of filter media in treating the Anney's Well borehole water and the feasibility of introducing the treated water into different stages of Lough Fea WTW.	July 22 - Aug 22	Completed	£20-40k	N/A	N/A	£0k	Completed under JB742 (£0k). Anney's Well Borehole Scheme Investigations. Report in folder.
Castor Bay Filter Media Trial.	To evaluate the performance of AFM in primary filters for reduction of THM's. Also, for filter optimisation.	Sept 22 - Oct 22	Completed	£40-60k	N/A	N/A	£60k	Completed under JG094. Total cost £60k. Report in folder.
Dunore Point Filter Media Trial.	To evaluate the performance of AFM in primary filters for reduction of THM's. Also, for filter optimisation.	Jan 23 - Feb 23	Completed	£40-60k	N/A	N/A	£60k	Completed under JA342. Total cost £60k. Report in folder.
Algae Control	To trial new innovative ultrasonic technology (LG Sonic) to aid in Algae Control and Clay Lake WTW. This will improve the lakes composition in water quality parameters.	Install & Commission July 22	Delayed	£220-260k	Oct 22	Completed	£224k	Commissioning completed Oct 22 under project JF622. Currently collecting data. Total spend £224k. Full Report to follow in due course once the efficacy of the unit has been assessed.
Ballinrees Filter Media Trials	To evaluate the performance of AFM in primary filters for reduction of THM's. Also, for filter optimisation	Jul 22 to Dec 22	Completed	£50-£100k	N/A	N/A	£60k	Completed under JC406. Total cost £60k. Report in folder.
<i>Gortglenaghan & Shanmoy Boreholes</i>	<i>Evaluate AFM treatment for Borehole water.</i>	<i>Feb 23 to Mar 23</i>	<i>Superseded by Project below</i>	<i>£40-80k</i>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>	<i>Superseded by the Project immediately below:</i>
Gortglenaghan Borehole & THM Analyser	Evaluate AFM treatment for Borehole Water and purchase and install In-Line THM Analyser to prove the efficacy of the technology.	Mar 23	Completed	£70k	N/A	N/A	£70k	Gortglenaghan Borehole complete. Report in Folder. Shanmoy Borehole currently on-hold. THM Analyser purchased and installed 17/04/23. Report to follow in due course after

Description	Reason for Doing	Original Target Date	Status vs Original Target Date	Original Cost Estimate	Current Target Date	Status vs Current Target Date	Current Estimated Cost/Spend	Comments
								running system for a minimum of 6 months to prove the efficacy of the analyser.
Total Spend to Date (Water Team)							£474k	
Fats Oils and Grease (FOG) removal trial	Start of Project information gathering/scope confirmation.	Apr 22	Completed	£0k	N/A	N/A	£0k	Free Proof of Concept Trial Completed.
ARMPhos Trial	Start of project information gathering / scope confirmation/ Site Selection	Jun 22	Rejected	£0k	N/A	N/A	N/A	Rejected during scoping exercise based on bed blinding issues encountered by other water companies.
Kandu Trial (Phase 2 - Scoping)	Kandu Trial (Phase 2) in Newry and Dungannon area (Wastewater network discharge monitoring). Start of Project information gathering / scope confirmation.	Apr 22	Completed	£0k	N/A	N/A	N/A	Scoping Completed
Low Temperature Anaerobic WW treatment	Low Temperature Anaerobic WW treatment Start of project information gathering / scope confirmation/ Site Selection.	Apr 22	Paused	N/A	N/A	N/A	N/A	
Elutions	Elutions / Digital Twin- Start of project information gathering / scope confirmation (Early engagement)	Apr 22	Rejected Aug 22	£0	N/A	N/A	N/A	Rejected during scoping exercise
Bio-Cage sludge	Bio-Cage sludge trial Start of project information gathering / scope confirmation.	July 22	Complete	N/A	N/A	N/A	N/A	
					Total Spend to Date (Ww Team)		£0k	Staff resources used for scoping projects and free proof of concept trial completed.

PLANNED NEXT STEPS FOR DELIVERY (See Table Below for Next Steps for Delivery)

Description	Reason for Doing	Original Target Date	Status vs Original Target Date	Original Cost Estimate	Current Target Date	Status vs Current Target Date	Current Estimated Cost/Spent	Comments
<i>Camlough WTW</i>	<i>To evaluate the feasibility of bringing Camlough WTW back on-line. The 12-month trial involves new innovative technologies.</i>	<i>2022/23</i>	<i>Superseded to Project Below</i>	<i>£200 – £300k</i>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>	<i>Superseded by the Project immediately below:</i>
Nano-Filtration Pilot	To prove the efficacy of Nano-Filtration using Moyola site as a base for use of water source and disposal of brine. Nano-Filtration is a chemical free treatment process. Small footprint for the volume of water treated. Potential option for water resilience and additional drinking water supply in the future. Moyola has been selected as a site that requires an upgrade in output of a minimum of 5MLD. Nano-Filtration is an option to use for 5MLD depending on performance during the trial.	Started Feb 23 Completion Aug 24	On-Target	£441k	Same as Original	On-Target	£441k Total Cost. £100k Spent to Mar 23.	Nano-Filtration unit going straight to Moyola WTW to join up with Pilot Plant. Moyola has been selected as site that requires an upgrade in output of a minimum of 5MLD. Nano-Filtration is an option to use for 5MLD depending on performance during the trial. Pilot Plant trial to start circa July/Aug 23 for a period of 1 year.
Site Filter Investigations (Multiple Sites)	To investigate all media types used in filtration within various treatment plants.	Feb 23 - Mar 24	On-Target	£100-£150k	Same as Original	On-Target	£150k Total Cost. £40k spent to Mar 23.	On-Going
<i>Lough Macrory WTW</i>	<i>Install AFM into two remaining Primary Filters. Upgrade Poly Pumps.</i>	<i>Nov 21 - Sep 22</i>	<i>Delayed</i>	<i>£20-£40k</i>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>	<i>Delayed. Priorities have moved this down the list. To be investigated again at Mid-Term review.</i>
<i>Clay Lake WTW</i>	<i>Media Replacement & Chemical Treatment Optimisation.</i>	<i>Mar 22 - Sep 23</i>	<i>Delayed</i>	<i>£20-£30k</i>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>	<i>Delayed. Priorities have moved this down the list. To be investigated again at Mid-Term review.</i>
Altnahinch WTW	Full site Optimisation.	Mar 23 - Mar 24	On-Target	£50k	Same as Original	On-Target	£200k Total Cost.	4 Projects Moved into One Project. No material changes in

Glenhordial WTW	Full site Optimisation.	Mar 23 - Mar 24	On-Target	£50k			£100k Spent to Mar 23	scope, target dates or costs.
Seagahan WTW	Full site Optimisation.	Mar 23 - Mar 24	On-Target	£50k				
Dorisland WTW	Full site Optimisation.	Mar 23 - Mar 24	On-Target	£50k				
Caugh Hill WTW	MIEX Plant Trial	Aug 22 - Aug 23	Superseded to below Project	£50-£80k	N/A	N/A	N/A	Superseded to immediate below Project. MIEX Pilot Trial will be getting set-up with a full-scale Pilot Plant. Estimated to start end of June 23/start of July 23.
ATI Filter Smart Units.	To purchase and Install 10 x ATI Filter Smart Units to prove the Efficacy of the technology.	Apr 23 - Sep 23	On-Target	£100k	Same as Original	N/A	£100k Total Cost. £0k Spent TD	On-Going.
Belleek WTW	Install AFM media in primary filters with associated relocation of chlorine dose. This will facilitate an efficiency through the removal of Manganese filters.	Aug 22 - Jan 23	Delayed	£20-£50k	N/A	N/A	N/A	Delayed. Priorities have moved this project down the list. To be investigated again at Mid-Term review.
Second Filter Media Trailer, including Particle Size and Colour Analysers	With the amount of work required a second filter media trailer is recommended.	Summer/Autumn 22	Build Subject to Budget Approval	£180-£220k	Summer 23	On-Target	£275k Total Cost. £135k Spent to Mar 23.	On-Going.
Moyola WTW Filter Media Trial.	To evaluate the performance of AFM in primary filters for reduction of THM's. Also, for filter optimisation.	July 23 - Aug 23	On-Target	£60k	Same as Original	N/A	£60k Total Cost. £0k Spent TD	On-Going
Total Cost on On-Going Projects (Water Team)							£1,226k	
Total Spend to Date on On-Going Projects (Water Team)							£375k	
Total Spend to Date on Completed Projects (Water Team)							£474k	
Total Overall Cost (Water Team)							£1,700k	

Kandu Trial (Phase 2)	Kandu Trial (Phase 2) in Newry and Dungannon area (Wastewater network discharge monitoring). 12 Month on site trial	May 23 to May 24	Ongoing	£240k	Same as original	On Target	£240k	On Target. Sensor deployment commenced 17/4/23
Fats Oils and Grease (FOG)	Fats Oils and Grease (FOG) removal trial 12 Month on site trial	Mar 23 to Mar 24	Ongoing	£77K	Same as original	On Target	£77k	On Target. Site trial started 3/3/23
Low Temperature Anaerobic WW treatment	Low Temperature Anaerobic WW treatment. Limited applicability to NI Water sites. Project suspended awaiting results of OFWAT funded trial being led by Thames Water.						£0k	Project suspended awaiting results of OFWAT funded trial being led by Thames Water
Oxidation Ditch Retrofits	Oxidation Ditch Retrofits - Start of project information gathering / scope confirmation/ Site Selection.	Sept 22	Deferred	£500k	June 23 to May 25	-	£0k	Estimated at £500K dependent on-site selection (L)
MABR Pilot trials	MABR Pilot trials- Start of project information gathering / scope confirmation/ Site Selection. Liaison with Severn Trent.	Apr 22	Scoping on going	TBC				MABR Pilot trials- Start of project information gathering / scope confirmation/ Site Selection. Liaison with Severn Trent.
Bio-Cage sludge trial pilot	Bio-Cage sludge trial pilot live – being PM by operations trial commenced Mar 23	Mar 23 to Jan 24	On Target project started March 23	£23K			£23k	On Target project started March 23
Nanofloc	Nanofloc - to evaluate the improvement in flocculation / treatment quality & capacity achieved that may be achieved - Start of Project information gathering/scope confirmation.	Mar 23 to April 25	Scoping- and trial site selection ongoing	TBC on site selection estimated at £150K (M)				TBC on site selection estimated at £150K (M)
NanoBubbles	NanoBubbles – A potentially more energy efficient /	Dec 22 to Mar 25	Scoping - discussions	Estimated at £50K				Estimated at £50K (M)

	effective method of aeration small scale pilot investigations. (A free of charge) proof of concept trial was completed in Dec 22		ongoing with supplier	(M)				
BioMag	BioMag to evaluate the improvement in treatment quality & capacity achieved that may be achieved by the addition of Bio Mag a form of Magnetite. Start of Project information gathering/scope confirmation.	Mar 23 to Feb 25	Scoping	TBC on site selection estimated £200K (M)				TBC on site selection estimated £200K (M)
Static Sludge Thickener	Static Sludge Thickener to evaluate the improvement in sludge quality achieved by the use of a static thickener. Start of Project information gathering/scope confirmation.	Mar 23 to June 23	Scoping	TBC on site selection estimated £200K (L)				TBC on site selection estimated £200K (L)
Salsnes Filter	Salsnes Filter - A low footprint alternative to Primary Settlement Tanks that can be also used for peak lopping Start of Project information gathering/scope confirmation.	Oct 23 to Oct 24	Awaiting Triage	TBC on site selection Estimated £250K (L)				TBC on site selection Estimated £250K (L)
Nuove Energie Primescreen	Nuove Energie Primescreen - A low footprint alternative to Primary Settlement Tanks that can be also used for peak lopping Start of Project information gathering/scope confirmation.	Oct 23 to Dec 24	Awaiting Triage	TBC on site selection Estimated £250K (L)				TBC on site selection Estimated £250K (L)
Storm Harvester Intelligent	Storm Harvester Intelligent Sewer Suite Wastewater network optimisation using	Sep 23 to Aug 25	Awaiting Triage	TBC on site selection Estimated				TBC on site selection Estimated £250K (M)

Sewer Suite	machine learning and hyperlocal rainfall forecasting. Start of Project information gathering/scope confirmation			£250K (M)				
Biodec Biobloc Filter media	Biodec Biobloc Filter media Plastic Structured Cross Flow Media for filters. Improved capacity and quality Start of Project information gathering/scope confirmation.	Jul 23	Awaiting Triage	TBC on site selection Estimated £150K (L)				TBC on site selection Estimated £150K (L)
BIO Phree	BIO Phree A phosphorous removal process based on a resin and ion exchange Start of Project information gathering/scope confirmation.	Mar 24 to April 25	Awaiting Triage	TBC on site selection Estimated £400K (L)				TBC on site selection Estimated £400K (L)
Screenless CSOs	Screenless CSOs A CSO design that is modular in construction and is designed to prevent litter pollution from entering the environment at the CSO. Start of Project information gathering/scope confirmation.	May 23 to June 25	Awaiting Triage	TBC on site selection Estimated £500K (L)				TBC on site selection Estimated £500K (L)
					WASTEWATER TOTAL COST	Committed	£340K	Medium Confidence = £650k Low Confidence = £2250k

PROPOSED MAINTENANCE EXPENDITURE / ADDITIONAL OPEX from CAPEX			
N/A			
IMPACT OF SCOPE / PROGRAMME CHANGES ON CAPITAL DELIVERY / OUTPUTS PROGRAMME			
N/A			
IMPACTS ON CAPITAL OUTPUTS PROGRAMME LINKED TO TABLES 40, 40a & 40b			
Links to Tables Completed	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Comments
RISKS & ISSUES ASSOCIATED WITH THIS DEVELOPMENT OBJECTIVE			
Innovation is associated with inherent risk. This is managed by conducting scoping phases, small scale pilots and where sufficient data is available the conduct of full-scale trials at carefully selected sites and frequently using offline test systems.			
WIDER BENEFITS OF THIS DEVELOPMENT OBJECTIVE			
Water and Wastewater capital and operational efficiencies opportunities are identified, and innovation moves into BAU.			
LINKAGE TO OTHER DEVELOPMENT OBJECTIVES			
The Innovation Case Studies document (2021) illustrates some links with other Development Outputs such as:			
<ul style="list-style-type: none"> • DO5 - Refresh of DG2 Register. This innovative involves the use of data and systems and there is engagement between the Efficiency and Innovation staff and the staff in Water Strategy and Modelling teams. There is no specific investment that draws on DO15 funding. • DO9 - WwPS / CSO Quality (UID) and WwPS Capacity increase. This is an area of Innovation focus and the integrated use of DAP information with Urban Drainage Modelling and IEM is essential to drive innovative and efficient solutions. There is linkage via Head of Investment Management and the Wastewater Efficiency and Innovation Manager that assess solutions, business cases, costs and seek the application of innovative technologies and approaches wherever possible to deliver efficiencies. The Head of Investment Management chairs the NIEA/ NIW Investment Group which is a monthly forum to engage with NIEA on WwPS / CSO Quality (UID) and WwPS capacity increase needs, priorities and programme for delivery. • DO13 Real Time Network Modelling. There is linkage via Head of Investment Management and the Wastewater Efficiency and Innovation Manager with the Head of Wastewater Strategy regarding the planning of trial studies to ascertain the benefits and mechanisms to allow NI Water to transition toward real time network modelling in specific networks. When appropriate there will be engagement with NIEA via the Investment Group chaired by the Head of Investment Management. • DO16 Urban Drainage Modelling - Studies to Inform PC27 - Top 271 Priority Drainage Areas. There is linkage via Head of Investment Management, Capital Programme Manager, Wastewater Efficiency, and Innovation Manager with the Head of Wastewater Strategy regarding DAPs required for scope certainty and their interdependency with D09 as stated above. • DO19 LWWP Networks. Similar linkage and synergies to D09, D013 and D016 via Investment Management and the Wastewater Efficiency and Innovation Manager and the NIEA/ NIW Investment Group. 			

DEVELOPMENT OBJECTIVE [DO]		
Ref	Development Objective	Sub-Programme
16	Urban Drainage Modelling - Studies to Inform PC27 - Top 271 Priority Drainage Areas	20g
GOVERNANCE		
Directorate	SRO	Project Lead
AD		
REASON DEVELOPMENT OBJECTIVE IS NECESSARY		
<p>This is required as NI Water's hydraulic models are key assets used to inform strategic studies, the Capital Works Programme and infrastructure planning. At the end of PC15, over 50% of NI Water's model stock was around 15 years old and has not been maintained.</p> <p>Up to date models are required to inform scope certainty for named UID projects in PC21 and to inform needs for PC27 planning.</p>		
DEVELOPMENT OBJECTIVE TO CONFIRM SOLUTION SPEND IN PC21 &/or PC27		
PC21 only <input type="checkbox"/>	PC27 only <input type="checkbox"/>	PC21 and PC27 <input checked="" type="checkbox"/>
PROJECT SCOPE		
<p>Develop the scope and specification for the network models for the Top 271 Priority Drainage Areas including the extent of modelling and verification required.</p> <p>No change to scope definition.</p>		
COMMENTARY ON MATERIAL CHANGES TO SCOPE		
N/A		
PROJECT OUTCOMES		
<p>Enhancing NI Water's ability to successfully address a number of its core areas:</p> <ul style="list-style-type: none"> • Economy – modelling will support growth planning decision making. • Environment – Investigate over 1000 network assets where impact to environment is unknown. • Customer – minimise the duration and maximise the accuracy of increasing levels of customer service and decreasing risk to the business. <p>The following provides more detail for the abovementioned original Project Outcomes:</p> <ul style="list-style-type: none"> • Scope certainty achieved for 111 UIDs, informed by DAP studies. • Evidence from DAPs has also facilitated the de-scoping/removal of UIDs from the PC21 programme. • Studies have contributed to over £150M of capital efficiencies, with potential for more savings in PC21 and PC27 • To date, PC21 DAPs have identified over 450 UIDs <p>Key Deliverables:</p> <ul style="list-style-type: none"> • Hydraulic Models • Capital Recommendations 		
COMMENTARY ON MATERIAL CHANGES TO PROJECT OUTCOMES		
N/A		
UR MONITORING EXPECTATIONS		
<p>Progress on the delivery of this objective will be monitored and reported on through the annual cost and performance report process as a minimum. In addition, we expect NI Water to:</p> <ul style="list-style-type: none"> • Develop and submit an updated programme for the delivery of this objective. 		

<ul style="list-style-type: none"> Engage with UR staff on the timing of additional engagement, reviews and the determination of any outcomes flowing from the successful completion of the development stages. Engage with NIEA to agree priorities and the programme for delivery as required. 					
HOW UR MONITORING EXPECTATIONS HAVE BEEN FULFILLED					
Table 40b outlines DAP programme.					
NIW provide NIEA with monthly progress updates on DAP progress through the Wastewater Investment Group. NIW has developed a dashboard which tracks progress, provides visibility of priorities and future workload planning.					
PROGRAMME					
Refer to Table 40b.					
See Master DO Programme v0 dated 07/07/23.					
KEY MILESTONES FOR DEVELOPMENT OBJECTIVE					
Description Key PC21 FD DO Milestones	FD21 Annex T Milestone Target Date	Status Vs FD21 Target	Current Milestone Target Date	Status Vs Current Target	Commentary on Material Milestone Date Changes <u>AND</u> / <u>OR</u> Reasons for any material Delay
Develop and submit an updated programme for the delivery of this objective.	N/A	N/A	June/ July 2022 (AIR 22)	Complete	See annual AIR submissions
Engage with UR staff on the timing of additional engagement, reviews and the determination of any outcomes flowing from the successful completion of the development stages	N/A	N/A	2023-24	On Target	N/A
Engage with NIEA to agree priorities and the programme for delivery as required	N/A	N/A	2021-26	On Target	N/A
Model Builds – Batch 1, 2 and	2021/22	Superseded	N/A	N/A	Original milestone

3					superseded by individual Batch 1, 2 and 3 milestones below
Model Builds – Batch 4,5, and 6	2022/23	Superseded	N/A	N/A	Original milestone superseded by individual Batch 1, 2 and 3 milestones below
Model Builds – Batch 7 and 8	2023/24	Superseded	N/A	N/A	Original milestone superseded by individual Batch 1, 2 and 3 milestones below
Model Builds – Batch 1 – released date March 21	N/A	N/A	Completion Mar 22	Complete	AIR22 had Q4 2022 (meaning end Q4 financial year 2021/22. See sample evidence provided for Table 40b
Model Builds – Batch 2 – release date July 22	N/A	N/A	Anticipated Completion Dec 23	On Target	AIR22 had Q3 2023 (meaning end Q3 financial year 2023/24)
Model Builds – Batch 3 – release date March 23	N/A	N/A	Anticipated Release date Mar 25	Delayed	AIR22 had Dec24. Release date to be delayed until end of 2024/25 to ensure optimised delivery of PC27 solutions. This delay does not affect PC21 delivery.
Model Maintenance	2021-27	On target	2021-27	On Target	N/A
KEY MILESTONES FOR SOLUTION INVESTMENT					
Capital Interventions	PC27	On target	PC27	On Target	Under the remit of Capital Delivery
EXPENDITURE [See Also Table DO1 below]					
FD21 Annex T Estimated Total Cost of DO (2018/19 prices)		Forecast Cost of DO (Nominal prices)		Commentary on Material Total Cost Changes for DO	
£7.77M		£9M		£9M is reforecast best estimate to complete scope of DO16.	

PC21 FD Estimated Cost of Solution (2018/19 prices)	Forecast Cost of Solution (Nominal prices)	Commentary on Material Solution Cost Changes	
TBC	TBC	N/A	
ACTIVITY COMPLETED TO DATE AND OUTCOMES TO DATE (MARCH 2023)			
<p>Following completion of the PC21 business plan, the original batches for DAP delivery were streamlined into 3 sprints to simplify delivery (thus replacing previous references to Batches 1-8). Reference sample evidence provided for Table 40b.</p> <ul style="list-style-type: none"> • 194 DAPs and Rural model builds completed • 55 Statement of Needs received from NIEA (recorded on dashboard) • Approx. 1000 UIDs recorded on NIW's Discharge Register • SON Dashboard created and shared on monthly basis with NIEA • Scope certainty achieved for 111 UIDs • Over 120 assets updated onto CAR based on survey data (facilitated through Mark Up process) 			
PLANNED NEXT STEPS FOR DELIVERY			
<p>To complete delivery Batch 2 of DAP. It is anticipated that these studies (127 number) will be completed by December 2023. NIW will continue to liaise with the Environmental Regulator to ensure timely delivery of environmental drivers as set out in the Statement of Need.</p> <p>Model Maintenance activity has commenced and is a key recommendation of 2022 NIW Internal Audit. Internal Audit has requested that NIW develop a strategy by January 2024. Extract from Audit <i>'The Network Modelling teams should document procedures including roles and responsibilities, defining a model maintenance methodology, triggers and frequency of maintenance etc'</i>.</p>			
PROPOSED MAINTENANCE EXPENDITURE / ADDITIONAL OPEX from CAPEX			
N/A			
IMPACT OF SCOPE / PROGRAMME CHANGES ON CAPITAL DELIVERY / OUTPUTS PROGRAMME			
<p>Outputs have been prioritised to support delivery of PC21 capital delivery programme with scope certainty achieved for all 12b nominated schemes.</p> <p>In addition, Batch 1 and Batch 2 completion will ensure that Needs can be fed into PC27 planning thus avoiding any future scope certainty submissions.</p>			
IMPACTS ON CAPITAL OUTPUTS PROGRAMME LINKED TO TABLES 40, 40a & 40b			
Links to Tables Completed	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Comments
RISKS & ISSUES ASSOCIATED WITH THIS DEVELOPMENT OBJECTIVE			
Risks have been recorded on the DAP risk register.			
WIDER BENEFITS OF THIS DEVELOPMENT OBJECTIVE			
<p>Further wider benefits achieved:</p> <ul style="list-style-type: none"> • Scope certainty achieved for over 111 UIDs, informed by DAP studies. • Evidence from DAPs has also facilitated the de-scoping/removal of UIDs from the PC21 programme. • Studies have contributed to over £150M of capital efficiencies, with potential for more savings in PC21. • PC21 DAPs have identified over 450 UIDs. 			
LINKAGE TO OTHER DEVELOPMENT OBJECTIVES			
Development Output Section 16 (Urban Drainage Modelling – Studies to Inform PC27)			

provides evidence based asset data across 271 catchments and as such is linked to the following Development Objectives:

- Section 09 (WWPS/CSO Quality UID, Section 19 (LWWP Networks)
- Section 20 (LWWP Wastewater Treatment Works and
- Section 25 (Addressing scope certainty for the Mid Term Review).

Development Objective – Expenditure Summary

Table DO1 Expenditure on Development Objective (Nominal Prices)

Category	Spend to End March 2023 (£m)	Anticipated Future Spend (£m)	Anticipated Total DO Spend (£m)	Comment
<i>Civil</i>				
<i>M&E</i>				
<i>Materials / Equipment</i>				
<i>NIE</i>				
<i>Lands</i>				
<i>Site Investigation</i>				
<i>Consultancy</i>	4.73	4.27	9.0	See expenditure commentary above.
<i>Pilot Studies</i>				
<i>Add Others as necessary</i>				
Totals	£4.73	£4.27	£9.0	
PC21 Projected Spend on Development Objective			£9.0M	

DEVELOPMENT OBJECTIVE [DO]		
Ref	Development Objective	Sub-Programme
17	Raw Water Trunk Main Rehabilitation	20/23c
GOVERNANCE		
Directorate	SRO	Project Lead
AD		
REASON DEVELOPMENT OBJECTIVE IS NECESSARY		
<p>A prioritised list of Raw Water Trunk Mains for rehabilitation is still to be established through pro-active condition assessments.</p> <p>IPAC project 2285 – Raw Water Trunk Main Rehabilitation was the Solution cost.</p> <p>Additional detail:</p> <p>Some raw water trunk mains have experienced structural failures which have a significant impact on the operation of Water Treatment Works and hence the potential to cause significant interruptions to customers. An assessment of the Raw Water Trunk network is required to determine the risk and consequences of failure.</p>		
DEVELOPMENT OBJECTIVE TO CONFIRM SOLUTION SPEND IN PC21 &/or PC27		
PC21 only <input type="checkbox"/>	PC27 only <input type="checkbox"/>	PC21 and PC27 <input checked="" type="checkbox"/>
PROJECT SCOPE		
<p>A Deterioration and Risk & Reliability Model was developed for Raw Water Trunk Mains (including Aqueducts & Structures) to inform the PC21 submission. On review, given the fact there is very little failure data to drive these models, the statistical relationships to predict failure are very uncertain and therefore the outputs from the models have not been used as part of the PC21 submission. Given the risk of supply interruptions if a Raw Water asset was to fail, a budget has been identified for prioritised Raw Water Trunk Main Rehabilitation in PC21.</p> <p>A prioritised list of Raw Water Trunk Mains for rehabilitation will be established through pro-active condition assessments under project '2576 – Asset Strategy Performance Modelling'. The rehabilitation project will be carried out under '2285 – Raw Water Trunk Main Rehabilitation'.</p> <p>Additional scope is to ensure that the 'Out of Service' raw water infrastructure is maintained in a safe state of repair.</p>		
COMMENTARY ON MATERIAL CHANGES TO SCOPE		
<p>The additional scope, to ensure that the 'Out of Service' raw water infrastructure is maintained safely, has arisen from reported structural issues on air well chambers along the abandoned Mourne Conduit.</p>		
PROJECT OUTCOMES		
<p>Reduction in risk of interruptions to supply.</p> <p>An additional outcome is to ensure that the 'Out of Service' raw water infrastructure is maintained in a safe state of repair to minimise Health and Safety risks.</p> <p>A key deliverable is a prioritised list of raw water assets for rehabilitation, followed by recommendation reports, capital project business cases and IPAC costings.</p>		
COMMENTARY ON MATERIAL CHANGES TO PROJECT OUTCOMES		
<p>See Commentary on Material Changes to Scope.</p>		

UR MONITORING EXPECTATIONS					
<p>Progress on the delivery of this objective will be monitored and reported on through the annual cost and performance report process as a minimum.</p> <p>In addition we expect NI Water to:</p> <ul style="list-style-type: none"> • Develop and submit an updated programme for the delivery of this objective • Engage with UR staff on the timing of additional engagement, reviews and the determination of any outcomes flowing from the successful completion of the development stages. An update on the condition assessment approach applied and how this has been used to identify and prioritise interventions is likely to be required as part of the engagement process. 					
HOW UR MONITORING EXPECTATIONS HAVE BEEN FULFILLED					
<p>After the completion of some condition assessments and analysis on the highest priority raw water trunk mains, NIW will engage with the UR. NIW is likely to be able to do this by March 2025 (as per milestone below).</p>					
PROGRAMME					
See Master DO Programme v0 dated 07/07/23.					
KEY MILESTONES FOR DEVELOPMENT OBJECTIVE					
Description Key PC21 FD DO Milestones	FD21 Annex T Milestone Target Date	Status Vs FD21 Target	Current Milestone Target Date	Status Vs Current Target	Commentary on Material Milestone Date Changes <u>AND</u> / <u>OR</u> Reasons for any material Delay
Submit updated programme to UR	N/A	N/A	Jun 22	Complete	See AIR22 submission
Provide UR with update on condition assessment approach	N/A	N/A	Mar 25	On target	AIR22 date - January 2023 Date revised to March 25. Delayed by need to develop methodology and approach for testing syphons and air wells. Plan to engage with UR either during MTR or more likely during PC27 working groups by Mar 25.
Establish preliminary prioritised list	Apr 21	Delayed	Nov 25	On target	AIR22 date - Autumn 2022

of Assets for potential rehabilitation					Date revised to Nov 25. Delayed due to additional scope (i.e. out of service assets), limited budget and consideration of innovative intervention types.
Completion of pro-active Condition Assessments of prioritised Raw Water Assets	Apr 23	Delayed	Sept 26	On target	AIR22 date - December 2023 Date revised to Sep 26. Delayed due to additional scope (i.e. out of service assets), limited budget and consideration of innovative intervention types.
Confirm final prioritised list of Raw Water Assets for Rehabilitation	Apr 24	Delayed	Dec 26	On target	AIR22 date - April 2024 Date revised to Dec 26. Delayed due to additional scope (i.e. out of service assets), limited budget and consideration of innovative intervention types.
KEY MILESTONES FOR SOLUTION INVESTMENT					
Complete delivery of prioritised rehabilitation programme	Mar 27	On target	Mar 27	On Target	AIR22 date – March 2027
EXPENDITURE [See Also Table DO1 below]					
FD21 Annex T Estimated Total Cost of DO (2018/19 prices)		Forecast Cost of DO (Nominal prices)		Commentary on Material Total Cost Changes for DO	
£0.4M		£1.19M		Best forecast at this early stage for desktop, inspection and some minor intervention work.	

PC21 FD Estimated Cost of Solution (2018/19 prices)	Forecast Cost of Solution (Nominal prices)	Commentary on Material Solution Cost Changes
£1.00M	£0M	The DO is to inform PC27 capital solutions. Any minor intervention work in PC21 is likely to be negligible cost and undertaken as base maintenance.
ACTIVITY COMPLETED TO DATE AND OUTCOMES TO DATE (MARCH 2023)		
<p>To date the activities are:</p> <ul style="list-style-type: none"> Review of the initial Raw Water Pipeline prioritised list and consideration of suitable pipeline testing locations A desktop review, field inspection of key assets and accommodation works on the Mourne Conduit to facilitate more detailed investigations and condition assessments. See attached report on Mourne Conduit Surveys. 		
PLANNED NEXT STEPS FOR DELIVERY from June 23 to June 24		
<p>The planned next steps are to progress the following:</p> <ul style="list-style-type: none"> Internal inspection of River Bann pumping main Inspections at two high risk air wells on the abandoned 'out of service' Mourne Conduit, near Carryduff. Determine any potential interventions Inspections at Newcastle Syphons to identify any restrictions Condition testing of Spelga IR to Fofanny WTW raw water trunk main due to recurring bursts. 		
PROPOSED MAINTENANCE EXPENDITURE / ADDITIONAL OPEX from CAPEX		
Likely to be negligible additional OPEX from CAPEX, however unknown at this early stage.		
IMPACT OF SCOPE / PROGRAMME CHANGES ON CAPITAL DELIVERY / OUTPUTS PROGRAMME		
N/A as no solutions are developed yet.		
IMPACTS ON CAPITAL OUTPUTS PROGRAMME LINKED TO TABLES 40, 40a & 40b		
Links to Tables Completed	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Comments N/A as no solutions yet		
RISKS & ISSUES ASSOCIATED WITH THIS DEVELOPMENT OBJECTIVE		
<p>Risks include:</p> <ul style="list-style-type: none"> Lack of available internal or external resources to meet programme date Uncertainty in scope and methodologies at this early stage of the assessments Access to some of the assets can be extremely challenging due to the mountainous terrain 		
WIDER BENEFITS OF THIS DEVELOPMENT OBJECTIVE		
<p>The wider benefits include:</p> <ul style="list-style-type: none"> A more robust and resilient raw water network to maintain supplies of water to WTW A reduction in the risk of unplanned interruptions to customers 		
LINKAGE TO OTHER DEVELOPMENT OBJECTIVES		
The is no linkage to other Development Objectives.		
Note that linkage was previously identified with Section 22 AD - Asset Strategy - Water		

Asset Performance Modelling, but given that the scope “2. Raw water aqueducts and structure investigations” is being removed due to duplication with this Section 17, linkage no longer exists.

Development Objective – Expenditure Summary

Table DO1 Expenditure on Development Objective (Nominal Prices)

Category	Spend to End March 2023 (£m)	Anticipated Future Spend (£m)	Anticipated Total DO Spend (£m)	Comment
<i>Civil</i>				
<i>M&E</i>				
<i>Materials / Equipment</i>				
<i>NIE</i>				
<i>Lands</i>				
<i>Site Investigation</i>	£0	£1.19m	£1.19m	JH003
<i>Consultancy</i>				
<i>Pilot Studies</i>				
<i>Add Others as necessary</i>				
Totals	£0m	£1.19m	£1.19m	
PC21 Projected Spend on Development Objective			£1.19m	

DEVELOPMENT OBJECTIVE [DO]		
Ref	Development Objective	Sub-Programme
18	Culmore DA KL554 - Skeoge Link Road	24a
GOVERNANCE		
Directorate	SRO	Project Lead
AD		
REASON DEVELOPMENT OBJECTIVE IS NECESSARY		
<p>Under the Derry Area Plan 2011, approximately 230 ha of land was zoned for development in the Glengalliagh area, to the North West of Derry, comprising approximately 8,000 properties. Historic needs and options report indicate a pumping solution will be required to convey foul flows to the treatment works at Culmore. The option outlined within this submission was taken from a historic 2011 DAP needs and options report and as such this option is regarded as a development output due to the need to re-verify the catchment and solution options stage.</p>		
DEVELOPMENT OBJECTIVE TO CONFIRM SOLUTION SPEND IN PC21 &/or PC27		
PC21 only <input checked="" type="checkbox"/>	C27 only <input type="checkbox"/>	PC21 and PC27 <input type="checkbox"/>
PROJECT SCOPE		
<p>Provision of a solution to convey flows from Skeoge Link Road development area (230 ha of land, estimated 8,000 properties) to the works at Culmore.</p> <p>Summary of Scope Refinement Project scope quantity references changed from properties to Population Equivalent (PE). Extent of lands to be served has increased to include existing development areas. Total population served by the proposed scheme is approximately 19,350PE. Total area for all approx. 297 ha. New population growth served: 11,800PE. Existing population redirected to the new scheme: 7,550PE.</p>		
COMMENTARY ON MATERIAL CHANGES TO SCOPE		
<p>As noted above, scope has increased to serve the required area and population as the existing network is overloaded and a common solution is more cost effective than two separate solutions.</p> <p>Potential to Remove Scope Reason - Business as Usual activities A1 Options and Business case complete. Engage with NIEA and other stakeholders on needs and options and the programme for delivery as required.</p>		
PROJECT OUTCOMES		
<ul style="list-style-type: none"> • Provide an updated business case to UR as part of PC21 Mid Term Review after route of pumping main has been agreed with DfI Roads. • Comply with requirement to serve new development in Glengalliagh area with sewerage infrastructure facilitating growth and development within the area for approximately 8,000 new properties, plus existing properties north of A515 and industrial areas. • Reduce network capacity issues to Pennyburn combined sewer and surrounding network reducing the risk of out of sewer flooding. • Reduction in the number of CSO spills to receiving watercourse improving water quality. 		

<p>Additional anticipated Project Outcomes</p> <ul style="list-style-type: none"> Facilitate the redirected flow associated with existing properties (7,550PE and 67 ha).
<p>COMMENTARY ON MATERIAL CHANGES TO PROJECT OUTCOMES</p> <p>A larger and a smaller catchment with the Culmore DA will be redirected to Skeoge from Pennyburn WwPS. The PE of the re-directed catchment is approx. 7,500PE plus 50PE and will have an impact on flows at Pennyburn, which is currently over-capacity.</p>
<p>UR MONITORING EXPECTATIONS</p> <p>Progress on the delivery of this objective will be monitored and reported on through the annual cost and performance report process as a minimum. In addition, we expect NI Water to:</p> <ul style="list-style-type: none"> Develop and submit an updated programme for the delivery of this objective. Engage with UR staff on the timing of additional engagement, reviews and the determination of any outcomes flowing from the successful completion of the development stages. Engage with NIEA and other stakeholders on needs and options and the programme for delivery as required. Submit a business case for the final solution, including costs and justification, to UR for determination. Engage with UR staff on implications for PC21 DG5 targets if required.
<p>HOW UR MONITORING EXPECTATIONS HAVE BEEN FULFILLED</p> <ul style="list-style-type: none"> Programmes for delivery of this objective developed and submitted with regular updates Engagement with other stakeholders including NIEA, DFI, Council, and others, and continues throughout the programme as required Business case will be submitted at part of the PC 21 Mid Term Review and will include costing and justification. No DG5s will be delivered under this project and PC21 DG5 outputs will remain unaffected.
<p>PROGRAMME</p> <p>See Master DO Programme v0 dated 07/07/23.</p> <p>P6 Programme is supplied in this update and is being developed alongside the business case.</p> <p>Programme dates below relate to internal NIW dates which relate to the delivery project are not to be confused with regulatory submission.</p> <p>Asset management meet with UR staff to discuss Development Objectives.</p>

Activity	Start	Finish
A00100 - ECI Period		03/07/2023
A00120 - Land Identification Complete	Milestone	04/04/2023
A10100 - Business Case Submission	Milestone	01/08/2023
A10110 - Business Case Approval	Milestone	01/10/2023
A10120 - A1 Form Approval	Milestone	01/12/2023
A10130 - Planning Permission Period	07/12/2022	28/07/2023
A30100 - Tender Preparation		
A30110 - A3 Approval		12/01/2024
A30120 - Design Period		
A30130 - Construction On Site Period	29/01/2024	31/03/2026
A30140 - Project Beneficial Use Finish		31/03/2026
A30150 - Asset Data Return Period		31/03/2026
A30160 - D2 Handover Date		31/03/2026
A44000 - A4 Approval		31/03/2027

KEY MILESTONES FOR DEVELOPMENT OBJECTIVE

Description Key PC21 FD DO Milestones	FD21 Annex T Milestone Target Date	Status Vs FD21 Target	Current Milestone Target Date	Status Vs Current Target	Commentary on Material Milestone Date Changes <u>AND / OR</u> Reasons for any material Delay
Culmore DAP Options & Needs est. complete	Dec 20	Superseded			New replacement milestone below
Develop and submit an updated programme for the delivery of this objective.			Jun 23	On Target	P6 Key dates provided. See Master DO Programme.
Engage with NIEA and other stakeholders on needs and options and the programme for delivery as required.			Mar 26	To be Removed	<u>To be removed as is BAU activity.</u> Ongoing and as required, No engagement required for DO but Project team

					liaise with NIEA for draft consent. Further sign off by NIEA prior to A1. Discussions ongoing with DfI Roads and Rivers.
Submit business case for solution, including costs and justification, in accordance with agreed timetable to UR for determination.			Sep 23	On Target	Business Case being drafted and will be submitted to UR as part of PC 21 mid-term review.
Engage with UR staff on implications for PC21 DG5 targets if required.			April 23	Removed	Removed due to no DG5s on project, 5 DG5s mentioned in the original business case relate to the entire Culmore DA. None will be delivered under this project.
Culmore DAP Options & Needs est. complete			Feb 24	On Target	DAP N&Os being updated, delay due to the prioritisation of PC21 projects. The preferred solution for this DO has been incorporated into the hydraulic model.
Estimated land purchase cost & programme	Jun 23	On Target			Negotiations ongoing with relevant

understood					landowners
A1 Options and Business case complete	Dec 23	On Target		To be Removed	<u>To be removed from DO11 as is BAU activity</u>
KEY MILESTONES FOR SOLUTION INVESTMENT (Note this section is relating to the construction phase which is outside the scope of the Development Objective)					
Construction commencement onsite	Jul 24	On Target	Jan 24	On Target	Option has been built into the hydraulic model with no negative effect. Allowing the original target date of Jul 24 to be brought forward. Subject to Planning and land approvals
Construction completion	Jul 26	On Target	Mar 26	On Target	Project being advanced to address ongoing issues in Culmore DA catchment
EXPENDITURE [See Also Table DO1 below]					
FD21 Annex T Estimated Total Cost of DO (2018/19 prices)		Forecast Cost of DO (Nominal prices)		Commentary on Material Total Cost Changes for DO	
£96k		£377k		Scheme specific modelling and undertaking the ECI phase. Annex T costs submitted in error. Corrected in this document.	
PC21 FD Estimated Cost of Solution (2018/19 prices)		Forecast Cost of Solution (Nominal prices)		Commentary on Material Solution Cost Changes	
£0.71m		£8.160 m		Originally pumping to Pennyburn WwPS which now has limited capacity, along with engineering and traffic management challenges of implementing a pipeline route down the A2 Bunrana Road. Current scheme has two new WwPSs and pumps directly to	

		the Culmore trunk sewer. Annex T costs submitted in error. Corrected in this document.
ACTIVITY COMPLETED TO DATE AND OUTCOMES TO DATE (MARCH 2023)		
<p>Culmore DAP Needs and Options completion has been delayed from December 2020 until February 2024 as a result of the original timeframe being unrealistic due to the complexity of the Culmore Catchment and prioritising of PC21 workload. This project has been input and tested in the latest hydraulic model.</p> <p>Annex T estimated spend has been updated to reflect revised timelines. It should be noted that originally the Annex T estimated spend on this development objective was £96k and estimated capital investment on solution was £0.71m. These figures do not reflect cost estimates within the Final Determination figure, which was £6.6M in 2018/19 prices. Costs may be further refined going forward as the project moves through the NIW Capital Works Programme Gateways. The original solution was modelled in the DAP completed in PC10. Changes in legislation and methodology have resulted in an increase in flows and development catchment.</p> <p>The current scheme has been modelled using the latest verified model and is now priced using IPAC. The scheme will serve new development and reduce the potential for out of sewer flooding in the Galliagh catchment.</p>		
PLANNED NEXT STEPS FOR DELIVERY		
<p>Engagement with Stakeholders as part of project delivery process.</p> <p>An updated Business Case will be submitted as part of the Mid Term Review.</p> <p>Continuation of work DAP Options and Needs as well as identification of land costs and impact of land negotiation on programme.</p> <p>Issue wayleaves, secure planning permission, complete design and costing, complete contract documents, procurement.</p>		
PROPOSED MAINTENANCE EXPENDITURE / ADDITIONAL OPEX from CAPEX		
<p>Additional OPEX funding is included within IPAC and highlights what will be needed to carry out the maintenance of the new equipment. IPAC was included within the PC21 submission.</p>		
IMPACT OF SCOPE / PROGRAMME CHANGES ON CAPITAL DELIVERY / OUTPUTS PROGRAMME		
<p>It is currently estimated that construction will be completed during 2026.</p>		
IMPACTS ON CAPITAL OUTPUTS PROGRAMME LINKED TO TABLES 40, 40a & 40b		
Links to Tables Completed	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/> Comments
RISKS & ISSUES ASSOCIATED WITH THIS DEVELOPMENT OBJECTIVE		
<p>Risk that Landowners object to using their land for NIW use Risk that Planning permission is not granted or that permission is delayed Risk that the necessary Consents are not in place to suit the programme</p>		

Risks	Likelihood of Risk (H/M/L)	Impact of Risk (H/M/L)	Mitigation Measures
Land purchase and access arrangements	H	H	Advanced land purchase/access negotiation will be implemented to reduce the delivery risk.
Availability of required power supply	M	M	Given the topography of the land, the proposed capital solution will require a pumped solution. Early engagement with NIE once proposed power demands are understood will reduce this risk to delivery.
Planning Permission, Environmental studies and Consents	M	H	Early and continued engagement with Planning department and relevant stakeholders.
Poor Ground Conditions	H	H	GI and service investigation to be undertaken
Social and Political Constraints	H	M	NI Water will continue to liaise with key stakeholders including political representatives and environmental groups.
PC21 Funding levels	H	M	Funding allocation to this work stream may be insufficient in PC21 to invest in capital intervention at this location.
Fluvial Flood Risk	M	M	The site for the proposed Skeogelands WwPS lies between two watercourses. DfI Rivers flood hazard mapping indicates that the site is not within the indicative floodplain, and is not within the detailed flood extent for a 0.1% AEP event (1 in 1,000 year flood event).
WIDER BENEFITS OF THIS DEVELOPMENT OBJECTIVE			
Additional capacity within the sewerage network allowing for future predicted growth and reducing the risk of out of sewer flooding.			
LINKAGE TO OTHER DEVELOPMENT OBJECTIVES			
There are no current links to any other Development Objectives.			

Development Objective – Expenditure Summary

Table DO1 Expenditure on Development Objective (Nominal Prices)

Category	Spend to End March 2023 (£m)	Anticipated Future Spend (£m)	Anticipated Total DO Spend (£m)	Comment/ Project Code(s)
Site Investigation				
Consultancy	0.077	0.300	0.377	(KL544)
Pilot Studies				
Totals	£0.077	£0.300	£0.377	
PC21 FD Projected Spend on Development Objective			£0.377	

DEVELOPMENT OBJECTIVE [DO]		
Ref	Development Objective	Sub-Programme
19 20	LWWP Networks & LWWP WwTW	Networks: 12b, 12d, 12g WwTW: 16b
GOVERNANCE		
Directorate	SRO	Project Lead
AD	Networks: [REDACTED] WwTW: [REDACTED]	Networks: [REDACTED] WwTW: [REDACTED]
REASON DEVELOPMENT OBJECTIVE IS NECESSARY		
At the time of the PC21 BP submission this investment had not reached regulatory certainty. In order to reach Final Determination (FD) it was agreed UR submissions in batches FD by mid PC21.		
DEVELOPMENT OBJECTIVE TO CONFIRM SOLUTION SPEND IN PC21 &/or PC27		
PC21 only <input type="checkbox"/>	PC27 only <input type="checkbox"/>	PC21 and PC27 <input checked="" type="checkbox"/>
PROJECT SCOPE		
<p>In response to a number of serious flooding events and concerns regarding deteriorating water quality in Belfast Lough the NI Executive approved the creation of the Living With Water Programme (LWWP) in July 2014 lead by Dfl. The aim of LWWP is to develop a Strategic Drainage Infrastructure Plan (SDIP) for the six WwTWs and their associated drainage catchments, which input to Inner Belfast Lough. Since the creation of the LWWP Board in January 2015 stakeholders have been working together to develop the most cost effective and sustainable plan that will address legacy issues and provide a wide range of benefits to society.</p> <p>In May 2017 a LWWP Integrated Environmental Modelling (IEM) Ecosystem Approach was agreed by Dfl, NI Water, DAERA, NIEA and NI UR to inform capital investment. In 2018 NI Water and its stakeholders recognised that the Belfast SDIP detailed appraisals would not be completed to fully inform the PC21 Business Plan and therefore decided the LWWP elements of this would be based on a "Straw Man" solution. This development objective is to develop the Straw Man solution presented as part of the PC21 Outline Capital Submission into a final Strategic Drainage Investment Plan solution.</p> <p>Final solutions to resolve the water quality, UID and DG5 issues will require completion of modelling, including IEM, and site based investigations to identify the optimum solutions.</p> <p>(Change from Annex T is words 'water quality' added to the last para to merge Project Scope paras from ref 19 and 20).</p> <p>No change to scope since AIR22.</p>		
COMMENTARY ON MATERIAL CHANGES TO SCOPE		
N/A		
PROJECT OUTCOMES		
<p>Networks</p> <ul style="list-style-type: none"> Protect against flooding and comply with the EU Floods Directive (water quantity): Resolve internal DG5 flooding; Work with stakeholders to develop integrated options to manage flood risk Enhance the environment and comply with the EU Water Framework Directive (water quality): Reduced risk of compliance failure; Contribute towards Inner Belfast Lough progressing towards "Good" status under the water Framework Directive 		

- Provide the capacity needed to continue to facilitate the new connections necessary for economic growth
- Take opportunities to remove rainwater from foul sewage and return to nature as close as where it lands as possible.
- Support ongoing economic development in manner with blue/green infrastructure that aligns with the overall 5, 10 and 25 year planning horizons.

Change from Annex T: Last 2 bullet points above added for networks to align to LWWP approach.

WwTW

- Reduced risk of compliance failure
- Contribute towards Inner Belfast Lough progressing towards "Good" status under the water Framework Directive
- Provide sufficient wastewater treatment capacity to cater for future economic growth

No change to PC21 FD Project Outcomes.

COMMENTARY ON MATERIAL CHANGES TO PROJECT OUTCOMES

N/A

UR MONITORING EXPECTATIONS

Progress on the delivery of this objective will be monitored and reported on through the annual cost and performance report process as a minimum. In addition, we expect NI Water to:

- Engage with UR staff on the timing of additional engagement, reviews and the determination of any outcomes flowing from the successful completion of the development stages.
- Engage with DfI, NIEA and other stakeholder on needs, priorities and the programme for delivery.
- Submit Regulatory business cases, including costs and justification, in accordance with the agreed timetable to UR for determination.
- Engage with UR staff on the implications for PC21 nominated output targets as required.

Note that this links to other PC21 development objectives related to programme scope/uncertainty.

HOW UR MONITORING EXPECTATIONS HAVE BEEN FULFILLED

- A Director of the UR is a member of the DfI Led LWWP Board, which meets three times a year. At these meetings, the UR receives updates from LWWP Partners progress on the LWWP, including progress by NI Water.
- Development and delivery of the LWWP is through a collaborative approach, through this collaboration NI Water staff regularly engage with DfI, NIEA and other stakeholder on needs, priorities and the programme for delivery through the development of LWWP Catchment Delivery Plans and a range of BAU processes.
- NI Water submitted most of the LWWP related PC21 Regulatory Business Cases by the end of the Batch 4 submission, including costs and justification, in accordance with the agreed timetable to UR for determination. The exception was the three business cases relating to Belfast WwTW, which are to be submitted as part of the Mid-Term Review.
- NI Water is engaging with UR staff on the implications for PC21 nominated output targets as required under the PC21 Mid-Term Review process.

PROGRAMME					
Delivery of NI Water's elements of the LWWP Belfast SDIP is under a P6 programme that is controlled and updated by NI Water's CPMO Team. See Master DO Programme v0 dated 07/07/23.					
KEY MILESTONES FOR DEVELOPMENT OBJECTIVE					
Description Key PC21 FD DO Milestones	FD21 Annex T Milestone Target Date	Status Vs FD21 Target	Current Milestone Target Date	Status Vs Current Target	Commentary on Material Milestone Date Changes <u>AND</u> / <u>OR</u> Reasons for any material Delay
Provide input to the LWWP Belfast SDIP to support the public consultation and then completion of the final plan for approval by the NI Executive	31/12/21	Complete	No Change		
Provide input to the DfI LWWP Governance Framework, so that this can be approved by the LWWP Board Partners, including the UR	Q4 2020/21	Complete	No Change		
Procurement Strategy for LWWP	Q2 2020	Complete	No Change		
Outcome (Needs Stage) of Drainage Area Plans	Q1 2021	Complete	No Change		
Outcome (Needs Stage) of Integrated Environmental Modelling	Q4 2021	Complete	No Change		
Develop a Master Programme for the LWWP in Primavera P6, and instigate monthly updates against this to the NIW LWWP Board	30/11/21	Complete	No Change		
Review the	30/01/22	Complete	No Change		

LWWP Master Programme and determine which LWWP Business Cases will be submitted to the UR under MTR Regulatory Submission Batch 2, 3 and 4					
Submit PC21 MTR Regulatory Submission Batch 2 to UR	31/03/22	Complete			
Submit PC21 MTR Regulatory Submission Batch 3 to UR	30/09/22		No Change	Complete	
Submit PC21 MTR Regulatory Submission Batch 4 to UR	31/03/23		No Change	Substantially Complete	Ref note on the 3 BCs not submitted by end of March 2023
Develop a detailed action plan for all of the key actions necessary to achieve the MTR Regulatory Submissions and then efficiently deliver the outputs and achieve the PC21 LWWP Investment Profile then monitor implementation of this action plan, with monthly updates provided to the NIW LWWP Board	30/11/21	Complete	No Change		
Provide updates on progress on development and delivery of NI Waters PC21 elements of the LWWP to each LWWP Board,	31/03/21	Complete	No Change		

which is chaired by DfI and attended by the UR.					
KEY MILESTONES FOR SOLUTION INVESTMENT (Networks)					
DAS and / or IEM appraisal studies (number of, on a rolling programme)	Q4 2022	On Target	No Change	Substantially Complete	DAS and IEM Work continues for NIEA to conclude the scope of some elements – see DO16
Preparation of business cases for developed solutions on a rolling programme	From Q4 2022	On Target	No Change	On Target	
Beneficial use	From Q4 2024	On Target	No Change	On Target	
For evidence refer: <ul style="list-style-type: none"> • to PC21 Mid-Term Review LWWP RBCs • records of NIW LWWP Board Meetings • records of DfI LWWP Board Meetings • LWWP P6 Programme • NI Water part input to DfI for the revised LWWP SOC (submitted 28/04/23) 					
KEY MILESTONES FOR SOLUTION INVESTMENT (WwTW)					
WwTW appraisal studies (number of, on a rolling programme)	Up to Q4 2023	On Target	No Change	On Target	
Preparation of business cases for each WwTW on a rolling programme	Up to Q4 2023	On Target	No Change	On Target	
Beneficial use of WwTW excl. outfalls (number of on a rolling programme)	Q1 2028	On Target	No Change	Some that were in the PC21 BP strawman solution will be delayed (Carrickfergus and Greenisland)	
EXPENDITURE [See Also Table DO1 below]					
FD21 Annex T Estimated Total Cost of DO (2018/19 prices)	Forecast Cost of DO (Nominal Prices)			Commentary on Material Total Cost Changes for DO	
DO19 ~£11.5m DO20 ~£11.5m	DO19 ~£17.5m DO20 ~£12.5m			Key differences are due to a combination of inflation and	

Note that the figures above were for PC21 Period DO related costs.	Note that the figures above are for PC21 Period DO related costs. Costs for PC27 period are to be determined as part of the PC27 BP process.	additional appraisal and catchment delivery work being necessary to define the scope of network projects.
PC21 FD Estimated Cost of Solution (2018/19 prices)	Forecast Cost of Solution (Nominal Prices)	Commentary on Material Solution Cost Changes
DO19 ~£377m DO20: ~ £580m (incl. sea outfalls) ~£320 (excl. sea outfalls) Note that these included the cost of the DO	DO19 ~£696m DO20: ~ £1,215m (incl. sea outfalls) ~£907 (excl. sea outfalls) Note that these include the cost of the DO	Difference is due to a combination of inflation and improved scope definition following DAS, IEM and Appraisals
ACTIVITY COMPLETED TO DATE AND OUTCOMES TO DATE (MARCH 2023)		
<p>Public consultation for the LWWP Belfast SDIP took place and following approval by the NI Executive, the DfI Minister launched the final plan at Belfast Castle on 9 November 2021. This included significant input from NI Water.</p> <p>NI Water helped DfI to prepare the LWWP Governance Framework document. Most of the document was approved by the DfI LWWP Board on 12 May 2022, with the final document approved by the DfI LWWP Board on 2 Feb 2023.</p> <p>The Procurement Strategy for LWWP was completed and the key recommendation was to set up a Major Projects Partnering Framework (MPPF). This was approved by the NIW LWWP Board, NI Water EC and Board. Following a competition process, on 26 May 2022 NI Water's Board approved that the MPPF be awarded and the successful suppliers were notified. The first secondary competition to select the team for Belfast WwTW commenced in the summer of 2022 with the team selected at the end of October 2022. The secondary competition to select the team for Kinnegar WwTW and Sydenham WwPS commenced in Feb 2023 and is on track to select the preferred team at the end of May 2023. The next secondary comp is on track to commence in June 2023.</p> <p>All 6 DAPs have been progressed to completion of the needs stage. Progress reports on this provided to each NIW LWWP Board meeting. DAPs are now being revisited and revised to reflect the findings of the Integrated Environmental Modelling through the Outline Optioneering Process.</p> <p>Needs Stage of Integrated Environmental Modelling is complete with the results shared at a workshop attended by LWWP Partners, including the UR. The IEM has informed development of the PC21 MTR RBC solutions through the Outline Optioneering Process.</p> <p>Master Programme for the LWWP in Primavera P6 developed and is being used to track progress and inform programme & project management.</p> <p>PC21 MTR Regulatory Business Cases have been submitted to the UR for all LWWP PC21 projects. These informed by DAS and/or IEM appraisal studies.</p> <p>NI Water provides progress updates ahead of each DfI LWWP Board, which are also presented by NI Water staff at each meeting. These meetings are attended by a UR Director.</p> <p>Beneficial use for Networks are on track.</p>		

Beneficial use for WwTW are mostly on track. However, due to increasing costs across the LWWP WwTWs, the upgrade of Greenisland WwTW and Carrickfergus WwTW have been deferred by 3 years – DfI was informed through NI Water’s part input to the revised SOC and LWWP Partners being informed through engagement related to their roles on the LWWP Governance Groups, including the LWWP Board.

A revised profile of NI Water’s forecast of the investment required to deliver its elements of the LWWP to the end of the PC27 period is being prepared for submission to DfI by the end of April 2023. The project costs within this align to the costs in the PC21 MTR Regulatory Business Cases.

Below is a screenshot of the LWWP Batch4 Submission files and appendices submitted to the UR.

Name	Date modified	Type	Size
1135_Appendix Data	31/03/2023 09:39	File folder	
1292_Appendix Data	30/03/2023 23:23	File folder	
1507 1509 1522 1533 1527 1530 1573 1575_Appendix Data	29/03/2023 18:23	File folder	
1593_Appendix Data	30/03/2023 19:27	File folder	
1594_Appendix Data	03/04/2023 14:02	File folder	
1605_Appendix Data	29/03/2023 18:29	File folder	
1733 1353 1932_Appendix Data	30/03/2023 18:52	File folder	
1979 1949 1967_Appendix Data	29/03/2023 15:52	File folder	
2750 1160_Appendix Data	05/04/2023 13:38	File folder	
KR750_Appendix Data	31/03/2023 13:12	File folder	
1135 KR171 Henderson Ave DGS Outline BC v1.4	30/03/2023 22:33	Adobe Acrobat Docu...	482 KB
1292 Dowlambert Park CSO Outline BC_Updated Mar 2023v2.0	30/03/2023 22:56	Adobe Acrobat Docu...	473 KB
1507 KR734 Kinnegar DA CSOs Outline BC_Updated Mar 2023v1.1	28/03/2023 17:41	Adobe Acrobat Docu...	637 KB
1593 KR739 Kinnegar WwTW Outline BC_Updated Mar 2023v6	30/03/2023 22:38	Adobe Acrobat Docu...	1,903 KB
1594 KR725 Whitehouse WwTW Outline BC_Updated Mar2023v8	30/03/2023 22:59	Adobe Acrobat Docu...	1,406 KB
1605 KR632 Sydenham WwPS Outline BC_Updated Mar 2023v1	28/03/2023 18:29	Adobe Acrobat Docu...	1,037 KB
1651 KR751 Belfast WwTW Demolition of Breffland RBC March 2023 v1.0	31/03/2023 12:18	Adobe Acrobat Docu...	706 KB
1657 KR721 Kennedy Way Hub - Regulator Business Case 15_03_23	30/03/2023 23:00	Adobe Acrobat Docu...	1,241 KB
1702 KR727 Greenisland WwTW Outline BC_Updated Mar 2023v0.8	29/03/2023 16:29	Adobe Acrobat Docu...	3,738 KB
1733 1353 1932 Glenmachan Strategy Outline BC_Updated Mar 2023v0.8	30/03/2023 00:18	Adobe Acrobat Docu...	2,077 KB
1800 KR728 Carrickfergus WwTW Outline BC_Updated Mar 2023v0.7	28/03/2023 16:15	Adobe Acrobat Docu...	6,399 KB
1947 KR755 Belfast Tunnel TPS Outline BC_Updated Mar 2023vPO3	30/03/2023 23:00	Adobe Acrobat Docu...	760 KB
1987 et al KR562 Carrickfergus UDs Outline BC_Updated Mar 2023v1.1	29/03/2023 16:06	Adobe Acrobat Docu...	487 KB
2746 KR588 Ravenhill Avenue Flood Alleviation Summary BC_v 1.0	30/03/2023 13:04	Adobe Acrobat Docu...	882 KB
2750 et al Whitehouse Outline BC_Updated Mar 2023v2.0	30/03/2023 20:53	Adobe Acrobat Docu...	637 KB
KR750 Telemetry Tower Relocation Small BC_Updated Mar 2023 v1	31/03/2023 13:31	Adobe Acrobat Docu...	607 KB

PLANNED NEXT STEPS FOR DELIVERY

Now that the RBCs have been submitted, the next stages for NI Water’s LWWP Projects include:

- OBC and A1 Approval
- Procurement
- FBC and A3 Approval
- Planning Permission
- Capital Delivery

The key milestones for all LWWP Large Projects are set out in NI Water’s part-input to DfI for the 2023 revised SOC.

These are all post Development Output steps.

PROPOSED MAINTENANCE EXPENDITURE / ADDITIONAL OPEX from CAPEX			
Any additional OPEX from CAPEX requirements in the PC21 Period was set out in the PC21 MRT RBCs.			
A separate exercise is being undertaken to estimate the extent of required maintenance funding as part of the MTR.			
IMPACT OF SCOPE / PROGRAMME CHANGES ON CAPITAL DELIVERY / OUTPUTS PROGRAMME			
The work to define NI Water's PC21 period related LWWP outputs for the PC21 MTR has been collated and added to revised estimates of the work required to complete the objectives of the LWWP Belfast SDIP. This has resulted in the overall estimate of NI Water's parts of the LWWP Belfast SDIP increasing from c£1.2bn to £1.9bn (in nominal terms, post assumed UR efficiency challenge). This has forced the deferral of the upgrades of 2 WwTW to the PC27 period. This will likely require that NI Water elements of the LWWP Belfast SDIP that are to be delivered from April 2027 will either have to be delivered over a longer period of time, or level of LWWP funding increased. NI Water has provided this revised estimate to DfI to inform the 2023 revision of the LWWP Strategic Outline Case (SOC). The way ahead is being discussed by LWWP Partners, including the UR, through engagement at the DfI led LWWP Board, the next meeting of which is on 25 May 2023.			
IMPACTS ON CAPITAL OUTPUTS PROGRAMME LINKED TO TABLES 40, 40a & 40b			
Links to Tables Completed	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Comments
RISKS & ISSUES ASSOCIATED WITH THIS DEVELOPMENT OBJECTIVE			
The Development Output risks related to the submission of RBCs for the PC21 MTR have passed.			
WIDER BENEFITS OF THIS DEVELOPMENT OBJECTIVE			
Identify relevant funding for LWWP Networks and WTWs projects to ensure: <ul style="list-style-type: none"> Reduced risk of compliance failure; Contribute towards Inner Belfast Lough progressing towards "Good" status under the water Framework Directive. Support ongoing economic development with blue/green infrastructure that aligns with the overall 5, 10 and 25 year planning horizons and improves the quality of the streetscape. 			
LINKAGE TO OTHER DEVELOPMENT OBJECTIVES			
Development Output S19 LWWP Networks is linked to the following Development Objectives: <ul style="list-style-type: none"> S09 WwPS/CSO Quality UID and WwPS Capacity increase S12 Storm Water Separation DO16 Urban Drainage Modelling - Studies to Inform PC27 			
Development Outputs S19 & 20 LWWP Treatment and Networks are also linked to DO <ul style="list-style-type: none"> S25 Addressing scope certainty for the Mid Term Review. 			

Development Objective – Expenditure Summary

Table DO1 Expenditure on Development Objective (Nominal Prices)




Note that the figures below are for PC21 Period DO related costs (share of DAP, IEM, CapSal plus Appraisal Fees) and exclude the delivery stage of the projects. DO related costs for PC27 period and beyond are to be determined as part of the PC27 Business Plan process.

Category	Spend to End March 2023 (£m)	Anticipated Future Spend (£m)	Anticipated Total DO Spend (£m)	Comment
<i>Consultancy</i>	£11m	£19m	£30m	Includes DAP, modelling & Capital Salaries
<i>Pilot Studies</i>				
Totals	£11m	£19m	£30m	Spend to end of March 23 (nominal prices) DO19 ~ £4.5m DO20 ~ £6.5m Anticipated Future Cost (nominal prices) DO19 ~ £13m DO20 ~ £6m Total Cost of DO (nominal prices) DO19 ~ £17.5m DO20 ~ £12.5m
PC21 FD Projected Spend on Development Objective			FD21 Annex T Estimated Total Cost of DO (2018/19 prices) DO19 ~£11.5m DO20 ~£11.5m	

DEVELOPMENT OBJECTIVE [DO]		
Ref	Development Objective	Sub-Programme
21	AD - Asset Strategy - Wastewater Asset Performance Modelling	20g
GOVERNANCE		
Directorate	SRO	Project Lead
AD		
REASON DEVELOPMENT OBJECTIVE IS NECESSARY		
We need to develop risk-based asset performance modelling tools and assessments for wastewater assets to inform detailed intervention during PC21.		
DEVELOPMENT OBJECTIVE TO CONFIRM SOLUTION SPEND IN PC21 &/or PC27		
PC21 only <input type="checkbox"/>	PC27 only <input type="checkbox"/>	PC21 and PC27 <input checked="" type="checkbox"/>
PROJECT SCOPE		
<ol style="list-style-type: none"> 1. Updates to the Sewage Risk & Consequence Models 2. Rising Mains Asset Prioritisation Development 3. Development of Siphon Asset Maintenance Data 4. Development of CSO Asset Maintenance Data 5. Development of Infiltration Strategy 		
No Change to scope.		
COMMENTARY ON MATERIAL CHANGES TO SCOPE		
N/A		
PROJECT OUTCOMES		
<p>The overall objective of this project is to facilitate enhanced investment planning and prioritisation of sewer base maintenance and rehabilitation programmes through adoption of a repeatable and robust, risk-based approach, and to optimise the flow of data to asset performance functions within NI Water. This will facilitate confident decision making and increased efficiencies during the implementation of the base maintenance programmes.</p>		
No Change to PC21 FD Project Outcomes.		
A key deliverable is the prioritisation tool that will risk score for each sewer line to facilitate decision making and target interventions.		
COMMENTARY ON MATERIAL CHANGES TO PROJECT OUTCOMES		
N/A		
UR MONITORING EXPECTATIONS		
<p>Progress on the delivery of this objective will be monitored and reported on through the annual cost and performance report process as a minimum. In addition, we expect NI Water to:</p> <ul style="list-style-type: none"> • Develop and submit an updated programme for the delivery of this objective. • Engage with UR staff on the timing of additional engagement, reviews and the determination of any outcomes flowing from the successful completion of the development stages. • An update on the modelling tools once developed and how NI Water intends to use them to identify and prioritise interventions is likely to be required as part of the engagement process. 		
HOW UR MONITORING EXPECTATIONS HAVE BEEN FULFILLED		
No formal monitoring undertaken other than AIR process.		

PROGRAMME					
See Master DO Programme v0 dated 07/07/23.					
KEY MILESTONES FOR DEVELOPMENT OBJECTIVE					
Description Key PC21 FD DO Milestones	FD21 Annex T Milestone Target Date	Status Vs FD21 Target	Current Milestone Target Date	Status Vs Current Target	Commentary on Material Milestone Date Changes <u>AND</u> / <u>OR</u> Reasons for any material Delay
Submit updated programme to UR			2021-27	On Target	
Engage with UR.			2021-27	On Target	
Engage with NIEA.			2021-27	On Target	
Provide update to UR on modelling tools once developed			Jan 24	On Target	
Appointment of Consultants	Jun 21	Complete	No Change	N/A	
Development of Tool	12 months (Jun 22)	Delayed	Dec 22	Complete	The Sewer Rehab Prioritisation Tool will enable decisions to be made on the management of sewage assets, with a Total Risk Score being assigned to each sewer. The prioritisation tool is an info asset based application which will allow a report to be generated listing out a prioritised list based on the total risk score. A summary of the background scripts of the prioritisation tool is attached in the 'Activity Completed to Date' section below. Staff changes and delay in data returns has led to slippage.

Updates to the Sewage Risk & Consequence Models	March 23		Dec 23	On Target	Staff changes and delay in data returns has led to slippage but testing and validating of model outputs ongoing.
Rising Mains Asset Prioritisation Development			Mar 24	On Target	
Development of Siphon Asset Maintenance Data			Mar 24	On Target	
Development of CSO Asset Maintenance Data			Mar 25	On Target	
Development of Infiltration Strategy			Mar 25	On Target	
KEY MILESTONES FOR SOLUTION INVESTMENT					
Description Key PC21 FD DO Milestones	FD21 Annex T Milestone Target Date	Status Vs FD21 Target	Current Milestone Target Date	Status Vs Current Target	Commentary on Material Milestone Date Changes <u>AND</u> / <u>OR</u> Reasons for any material Delay
Outputs utilised to generate and inform detailed intervention Projects for delivery by NI Water during PC21	2021-27	On Target	2024-27	On Target	Programme slippage due to staff changes and data return delays. From Dec 2023 the Sewage Risk and Consequence Model will be available to generate and inform detailed intervention. Solution outputs will be funded under Base Maintenance.
EXPENDITURE [See Also Table DO1 below]					
FD21 Annex T Estimated Total Cost of DO (2018/19 prices)	Forecast Cost of DO (Nominal prices)		Commentary on Material Total Cost Changes for DO		
£0.55m	£0.707m		No change. £0.707m is reflective of FD amount uplifted by RPI.		

PC21 FD Estimated Cost of Solution (2018/19 prices)	Forecast Cost of Solution (Nominal Prices)	Commentary on Material Solution Cost Changes
TBC	£0m	Solution outputs will be funded from Base Maintenance programme
ACTIVITY COMPLETED TO DATE AND OUTCOMES TO DATE (MARCH 2023)		
<p>Development of the Sewer Rehabilitation Prioritisation Tool (SRPT) and methodology has progressed. This has included the continued identifying of relevant data held by NI Water that will be beneficial and providing availability/access. The prioritisation tool is an info asset based application which will allow a report to be generated listing out a prioritised list based on the total risk score. The prioritise list can then be exported in PDF/excel, etc format. A summary of the background scripts of the prioritisation tool is attached. Progress meetings continue on a fortnightly basis. Change in staff and delay in data returns has led to slippage of programme.</p>		
 NIW SRPT Methodology.docx	 SRPT Methodology - Section 4.1.msg	 SRPT - Summary.msg

PLANNED NEXT STEPS FOR DELIVERY			
<p>The first phase of this program is to update the Sewage Risk & Consequence Models, which is underway with a completion target date of December 2023. After which the tool can be assessed and installed into Business as usual.</p> <p>NI Water intend to try out the tool and have CCTV survey work prioritized to enable the sewer maintenance programme to continue throughout PC21 and help with PC27 Outputs.</p> <p>All CCTV work carried out throughout the Business will also be able to be linked back into this tool, which will then be able to be prioritised also as part of the overall programme. (E.g.) CCTV work carried out as part of Drainage Area Programme (DAPs) can be assessed.</p> <p>At present NI Water are using the PC15 Methodology for the start of the PC21 sewer maintenance programme, which enables NI Water to meet its targets at the start of PC21 and not playing catchup waiting on the new methodology and falling behind on its targets.</p> <p>Once the tool has been assessed and approved, NI Water will start the rest of the programme as set out below.</p> <p>Phase 2 will be the creation of a Rising Mains Asset Prioritisation system. Target date for completion is March 2024.</p> <p>Phase 3 will be the development of Siphon Asset Maintenance program. Target date for completion 2024.</p> <p>Phase 4 will be the development of CSO Asset Maintenance program. Target date for completion 2025.</p> <p>Phase 5 is the development of an Infiltration Strategy. Target date for completion 2025. It is the intention of NI Water that Phases 1 to 4 will all be held within one data set. This will enable a full prioritisation program to be set out.</p> <p>The aim of the programme is to have all information stored in the one location, regarding survey work and sewer maintenance. This will also link back to Corporate Asset Register.</p>			
PROPOSED MAINTENANCE EXPENDITURE / ADDITIONAL OPEX from CAPEX			
N/A			
IMPACT OF SCOPE / PROGRAMME CHANGES ON CAPITAL DELIVERY / OUTPUTS PROGRAMME			
Developments budget			
<p>The development budget will be assessed on an annual basis, enabling NI Water to see how the expenditure is delivering the over programme. As the programme is set out in Phases, it makes it easier to assess.</p> <p>The Capital Budget will be able to be assessed annually also, the creation of the new tool will enable NI Water to have a capital maintenance programme, prioritised to whatever budget is given.</p>			
IMPACTS ON CAPITAL OUTPUTS PROGRAMME LINKED TO TABLES 40, 40a & 40b			
Links to Tables Completed	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Comments N/A
RISKS & ISSUES ASSOCIATED WITH THIS DEVELOPMENT OBJECTIVE			
Availability of suitable and accuracy of data.			

WIDER BENEFITS OF THIS DEVELOPMENT OBJECTIVE
Better and focused base maintenance investment, maintaining level of service reducing risk of asset failure.
LINKAGE TO OTHER DEVELOPMENT OBJECTIVES
No links to other Development Objectives.

Development Objective – Expenditure Summary

Table DO1 Expenditure on Development Objective (Nominal Prices)

Category	Spend to End March 2023 (£m)	Anticipated Future Spend (£m)	Anticipated Total DO Spend (£m)	Comment
<i>Civil</i>	-	-	-	
<i>M&E</i>	-	-	-	
<i>Materials / Equipment</i>	-	-	-	
<i>NIE</i>	-	-	-	
<i>Lands</i>	-	-	-	
<i>Site Investigation</i>	-	-	-	
<i>Consultancy</i>	0.123	0.55	0.707	No change. £0.707m is reflective of FD amount uplifted by RPI.
<i>Pilot Studies</i>	-	-	-	
<i>Add Others as necessary</i>	-	-	-	
Totals	£0.123	£0.55	£0.707	
PC21 FD Projected Spend on Development Objective			£0.707	

DEVELOPMENT OBJECTIVE [DO]		
Ref	Development Objective	Sub-Programme
22	AD - Asset Strategy - Water Asset Performance Modelling	20g
GOVERNANCE		
Directorate	SRO	Project Lead
AD		
REASON DEVELOPMENT OBJECTIVE IS NECESSARY		
We need to develop risk-based asset modelling tools and assessments for water assets to inform detailed interventions during PC21.		
DEVELOPMENT OBJECTIVE TO CONFIRM SOLUTION SPEND IN PC21 &/or PC27		
PC21 only <input type="checkbox"/>	PC27 only <input type="checkbox"/>	PC21 and PC27 <input checked="" type="checkbox"/>
PROJECT SCOPE		
<ol style="list-style-type: none"> 1. Strategic trunk main condition assessments 2. Raw water aqueducts and structure investigations 3. External specialist support to verify and package rehab schemes 4. SR condition assessments 5. PPRA 6. Development of strategic SV/AV inspections 7. Water quality sampling strategic network 		
COMMENTARY ON MATERIAL CHANGES TO SCOPE		
<p>Removed Scope</p> <p>Reason – duplication with other Development Objectives</p> <ol style="list-style-type: none"> 2. "Raw water aqueducts and structure investigations" is removed as it is duplicated by DO17 Raw Water Trunk Main Rehabilitation 7. "Water quality sampling strategic network" is removed as the water quality performance across the strategic network will be monitored using permanent and temporary water quality units under DO8 Smart Networks – ITS Strategy <p>Potential to Remove Scope</p> <p>Reason - Business as Usual activities</p> <ol style="list-style-type: none"> 3. External specialist support to verify and package rehab schemes 5. PPRA 6. Development of strategic SV/AV inspections <p>Retained Scope</p> <p>Reason – technology and approach is still developing</p> <ol style="list-style-type: none"> 1. Strategic trunk main condition assessments 4. SR condition assessments 		
PROJECT OUTCOMES		
<ol style="list-style-type: none"> 1. Plan work packages to deliver schemes efficiently and effectively for the Watermains Rehabilitation Programme (WMRP). 2. Identify benefits, costs and targeted intervention expenditure on the clean water networks 3. Address Network Serviceability 4. Maintain adequate Customer Service 5. Understand and react in advance to potential Trunk Main potential failures 6. Understand and react in advance to potential Service Reservoir Water Quality failures 		

COMMENTARY ON MATERIAL CHANGES TO PROJECT OUTCOMES					
<p>If scope reduction is accepted, the following outcome is removed:</p> <p>1. Plan work packages to deliver schemes efficiently and effectively for the Watermains Rehabilitation Programme (WMRP).</p> <p>Outcomes 2-6 are relevant to the remaining scope.</p> <p>A key deliverable of this development objective is assessments of the condition of our potable strategic pipelines and Service Reservoirs, to inform better investment decisions for the PC27 period.</p>					
UR MONITORING EXPECTATIONS					
<p>Progress on the delivery of this objective will be monitored and reported on through the annual cost and performance report process as a minimum. In addition, we expect NI Water to:</p> <ul style="list-style-type: none"> • Develop and submit an updated programme for the delivery of this objective. • Engage with UR staff on the timing of additional engagement, reviews and the determination of any outcomes flowing from the successful completion of the development stages. • An update on the modelling tools once developed and how NI Water intends to use them to identify and prioritise interventions is likely to be required as part of the engagement process. 					
HOW UR MONITORING EXPECTATIONS HAVE BEEN FULFILLED					
<p>On the assumption that the scope is reduced to</p> <ul style="list-style-type: none"> • "1. Strategic trunk main condition assessments" • "4. SR Condition Assessments" <p>NIW will be engaging with the UR, either during the Mid Term Review (MTR) or more likely during the PC27 working groups, to continue these assessments after the MTR. This will include new technologies and best practice inspection techniques to assess the condition of strategic mains and SR structures, and their prioritisation for rehabilitation.</p>					
PROGRAMME					
See Master DO Programme v0 dated 07/07/23.					
KEY MILESTONES FOR DEVELOPMENT OBJECTIVE					
Description Key PC21 FD DO Milestones	FD21 Annex T Milestone Target Date	Status Vs FD21 Target	Current Milestone Target Date	Status Vs Current Target	Commentary on Material Milestone Date Changes <u>AND</u> / <u>OR</u> Reasons for any material Delay
Submit updated programme to UR	N/A	N/A	Jun 22	Completed	AIR22 had Mar 23. See annual AIR submissions
Provide UR with update on condition assessment approach	N/A	N/A	Mar 24	On Target	AIR22 had Mar 24. Will be engaging with UR on remaining scope

					either during MTR or more likely during the PC27 working group by Mar 25.
Strategic Trunk Main Condition Assessments	2021-2027	On target	2021-2027	On Target	<p><i>Milestone 1</i> Phase 1 complete Dec 22 – see evidence.</p> <p>Phase 2 ongoing.</p> <p>Outputs will inform PC27.</p>
Raw Water Aqueducts and Structure Investigations	2021-2027	N/A	N/A	Removed	Removed from DO22. Duplication of DO17
External Specialist Support to Verify and Package Rehab Schemes	2021-27	N/A	N/A	To be Removed	<p>To be removed from DO22 as BAU.</p> <p><i>Note Phase 1 WP completed Sep 22-Feb 23. Phase 2 WP planned for Sep 25.</i></p>
SR Condition Assessments	2021-2027	On target	Mar 27	On target	<p><i>Milestone 2</i></p> <p>AIR22 (electroscanning reports) had :</p> <ul style="list-style-type: none"> • Output reports by summer 22 • Inspections by Mar 23 <p>Note packages are developed on annual basis.</p> <p>Assessments will continue after MTR, funding dependant</p>
PPRA	2021-27	N/A	N/A	To be Removed	To be removed from DO22 as

					BAU. Note outputs are in annual AIR returns
Development of SV/AV inspections	2022-25	N/A	N/A	To be Removed	To be removed from DO22 as BAU.
Water Quality Sampling Strategic Network	2022-25	N/A	N/A.	Removed	Removed from DO22. Duplication of DO08
KEY MILESTONES FOR SOLUTION INVESTMENT					
Outputs utilised to generate and inform detailed intervention Projects for delivery by NI Water during PC21	2021-2027	On target	2021-2027	On target	No change. Will also inform PC27
EXPENDITURE (See Also Table DO1 below)					
FD21 Annex T Estimated Total Cost of DO (2018/19 prices)	Forecast Total Cost of DO (Nominal prices)		Commentary on Material Total Cost Changes for DO		
£3.35M	£4.8M for original scope (OR £3.9M if scope is reduced)		Combination of JI215, JI272 & JI130.		
PC21 FD Estimated Cost of Solution (2018/19 prices)	Forecast Cost of Solution (Nominal prices)		Commentary on Material Solution Cost Changes		
TBC	£0M		£0M is best estimate of forecast cost, and this may change if any high priority rehabilitation is identified for PC21 spend during the assessments. The likelihood of this is low, but possible.		
ACTIVITY COMPLETED TO DATE AND OUTCOMES TO DATE (MARCH 2023)					
<p>On the assumption that the scope is reduced to</p> <ul style="list-style-type: none"> • "1. Strategic trunk main condition assessments" • "4. SR Condition Assessments" <p>1. Strategic trunk main condition assessments Activities completed to date include:</p> <ul style="list-style-type: none"> • See Milestone 1a map of Strategic Pipeline Inspections to demonstrate completion of Strategic Trunk Main Condition Assessments – Phase 1. • Inspections on Omagh Ring Main (see Milestone 1b Condition Assessment report to support completion of Strategic Trunk Main Condition Assessments – Phase 1). 					

<ul style="list-style-type: none"> • Inspections on Ballymena Ring Main and Drumaroad WTW to Sampsons Stone. 			
4. SR Condition Assessments			
Activities completed to date include:			
<ul style="list-style-type: none"> • Traditional visual inspections of SRs • Electro scanning of Concrete surfaces to inform efficient and effective concrete repairs. • See <i>Milestone 2 SR Concrete Repair Amphora report for an example of the innovative technologies being trialled.</i> 			
PLANNED NEXT STEPS FOR DELIVERY			
On the assumption that the scope is reduced to			
<ul style="list-style-type: none"> • "1. Strategic trunk main condition assessments" • "4. SR Condition Assessments" 			
1. Strategic trunk main condition assessments			
Planned next steps include:			
<ul style="list-style-type: none"> • condition inspections on the Caugh Hill to Derry and Dunore WTW Strategic /Transmission Mains. 			
4. SR Condition Assessments			
Planned next steps include continuation of:			
<ul style="list-style-type: none"> • Traditional visual inspections of SRs • Electro scanning of Concrete surfaces to inform efficient and effective concrete repairs. • Throughflow analysis of SRs 			
PROPOSED MAINTENANCE EXPENDITURE / ADDITIONAL OPEX from CAPEX			
As none of the equipment is permanent, the additional OPEX from CAPEX will be zero/negligible.			
IMPACT OF SCOPE / PROGRAMME CHANGES ON CAPITAL DELIVERY / OUTPUTS PROGRAMME			
N/A as no solutions exist as yet.			
IMPACTS ON CAPITAL OUTPUTS PROGRAMME LINKED TO TABLES 40, 40a & 40b			
Links to Tables Completed	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Comments N/A
RISKS & ISSUES ASSOCIATED WITH THIS DEVELOPMENT OBJECTIVE			
Risks include:			
<ul style="list-style-type: none"> • Uncertainties associated with new innovative technologies which are yet to be tried and tested 			
WIDER BENEFITS OF THIS DEVELOPMENT OBJECTIVE			
Wider benefits include:			
<ul style="list-style-type: none"> • Improvement in the delivery of robust and resilient water infrastructure • Improvements in customer experience and levels of service 			

LINKAGE TO OTHER DEVELOPMENT OBJECTIVES

There is no linkage to other development objectives. The removal of Raw Water Trunk Main Rehabilitation (due to duplication with Section 17) and the removal of Water Quality sampling strategic network (due to duplication with Section 08) means there is no longer any linkage with these DO's.

The remaining scope (i.e. condition assessments of strategic pipelines and SRs) is not linked to any other Development Objectives.

DEVELOPMENT OBJECTIVE [DO]		
Ref	Development Objective	Sub-Programme
23	Facilities H&S Compliance	20e
GOVERNANCE		
Directorate	SRO	Project Lead
AD		
REASON DEVELOPMENT OBJECTIVE IS NECESSARY		
<p>In depth Health and Safety audits were prompted by specific actions included within our Corporate H&S Strategy Action Plan 2018-2021. These audits have confirmed the following:</p> <ul style="list-style-type: none"> • A significant lack of legal compliance with respect to basic 'hard' facilities management responsibilities, including fire safety, legionella assessment, asbestos management, control and general maintenance and servicing of some fixed plant and equipment; • Lack of competently trained personnel on site in charge of premises related issues; • Lack of training for field operative / plant managers (and consequent lack of knowledge) in regulatory requirements for management of premises, such as DSEAR, fire safety including emergency light testing, legionella, asbestos management; • A lack of grounds or property maintenance budget as stated by some premises and field managers; • A common view that premises maintenance is not a priority. 		
DEVELOPMENT OBJECTIVE TO CONFIRM SOLUTION SPEND IN PC21 &/or PC27		
PC21 only <input type="checkbox"/>	PC27 only <input type="checkbox"/>	PC21 and PC27 <input checked="" type="checkbox"/>
PROJECT SCOPE		
<ul style="list-style-type: none"> • Continued development of a Facilities Management Strategy and implementation of recommended outputs from audits and surveys is required. • Meeting minimum statutory obligations with regard to managing asbestos containing materials, basic fire safety provisions and plant and equipment maintenance amongst others. • If such work is not undertaken, some employees and contractors will remain exposed to both health and safety risks that could result in fatality, life-changing injury or permanent ill-health symptoms. • Compliance with statutory obligations also significantly reduces the potential for prosecution, regulatory fines and associated civil claims, increased insurance costs and reputational damage. • An organisation cannot become 'World Class' unless it first aspires to comply with its legal obligations' <p>No change to scope.</p>		
COMMENTARY ON MATERIAL CHANGES TO SCOPE		
N/A		

PROJECT OUTCOMES
<p>Report and audit showing compliance with minimum statutory H&S obligations.</p> <p>Health and safety legal compliance and minimising risk to:</p> <ul style="list-style-type: none"> • Employees and contractors • Potential for prosecution • Regulatory fine • Increasing insurance costs, and • Reputational damage <p>No change to PC21 FD Project outcomes.</p>
COMMENTARY ON MATERIAL CHANGES TO PROJECT OUTCOMES
N/A
UR MONITORING EXPECTATIONS
<p>Progress on the delivery of this objective will be monitored and reported on through the annual cost and performance report process as a minimum. In addition we expect NI Water to:</p> <ul style="list-style-type: none"> • Develop and submit a programme for the delivery of this objective. • Engage with UR staff on the timing of additional engagement, reviews and the determination of any outcomes flowing from the successful completion of the development stages. <p>An update on how the Facilities Management Strategy is being developed and used to identify and prioritise interventions to meet legislative requirements is likely to be required as part of the engagement process.</p>
HOW UR MONITORING EXPECTATIONS HAVE BEEN FULFILLED
<p>Progress is monitored at a number of levels via a monthly dashboard reporting system. The dashboard report is delivered at different monthly management meetings, Board level, Executive Committee and Risk Committee. The Dashboard monitors key project milestones and compliance. Programmes such as Fire Safety, Legionella and PUWER have been sub-divided into prioritised risks and progress is monitored on these sub programmes and reported monthly also.</p> <p>Programmes such as asset surveys and high risk remedial actions have been complete. Risk Assessments have been renewed for Asbestos, Fire Risk and Legionella across 900 sites. A PPM Plan was commenced PC21 Year2. This PPM programme is being delivered on an incremental release of sites with the aim to reach full compliance at 900 sites within PC21. Progress is dependent on funding. To reach compliance, investment has been required to replace large parts of the asset list, examples are alarm systems and Legionella controls.</p> <p>The Facilities Management strategy is to develop and implement a permanent programme of inspection and testing across all the relevant buildings to meet SFG20 specification. SFG20 is the industry standard for building maintenance specification.</p> <p>Extracts from reports to NI Water Executive Committee are attached at the end of this document.</p> <p>The UR is provided with updates on progress of the DO through the AIR process.</p>
PROGRAMME
<p>See Master DO Programme v0 dated 07/07/23.</p> <p>A high level summary of activities associated with this Development Objectives is</p>

presented below:

Key Dates (PC21 - 2021-2027)	21/22	22/23	23/24	24/25	25/26	26/27
Facilities building surveys (922 sites)	<input type="checkbox"/>					
Facilities compliance remedial actions	<input type="checkbox"/>	<input type="checkbox"/>				
Phased Planned Preventative Maintenance schedule		<input type="checkbox"/>	<input type="checkbox"/>			
Risk assessments Fire, Legionella, Asbestos	<input type="checkbox"/>	<input type="checkbox"/>				
Fire, Legionella & Asbestos remedial Actions		<input type="checkbox"/>	<input type="checkbox"/>			
Risk Assessments & remedials Public Accessible sites			<input type="checkbox"/>			
Risk assessments PUWER		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

KEY MILESTONES FOR DEVELOPMENT OBJECTIVE

Description Key PC21 FD DO Milestones	FD21 Annex T Milestone Target Date	Status Vs FD21 Target	Current Milestone Target Date	Status Vs Current Target	Commentary on Material Milestone Date Changes <u>AND</u> / <u>OR</u> Reasons for any material Delay
Initial H&S Surveys	2021-27	Complete	N/A	Complete	H&S surveys are complete. This formed a Remedials Programme and a Planned Preventative maintenance Programme – evidence at end of this report.
Projects categorised and prioritised	N/A	N/A	2022	Complete	Prioritisation of Remedials and PPM programme.
Provide update to UR	N/A	N/A	AIR23	On target	

KEY MILESTONES FOR SOLUTION INVESTMENT

Facilities upgrades	2021-27	On target	2021-27	On target	No change
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EXPENDITURE [See Also Table DO1 below]

FD21 Annex T Estimated Total Cost of DO (18/19 prices)	Forecast Cost of DO (Nominal prices)	Commentary on Material Total Cost Changes for DO
£10m	FM £19.8m (IPAC 2603 & 2604) + H&S £5m	FM – Number of sites to have facilities remedial work and planned preventative maintenance has increased significantly from initial PC21 planning – now c900 sites are in scope.

PC21 FD Estimated Cost of Solution (18/19 prices)	Forecast Cost of Solution (Nominal prices)	Commentary on Material Solution Cost Changes
TBC	Included in forecast cost of DO above	As outlined above
ACTIVITY COMPLETED TO DATE AND OUTCOMES TO DATE (MARCH 2023)		
<p>Activity Completed to date and its outcome</p> <ul style="list-style-type: none"> • The Corporate H&S Strategy Action Plan 2018-2021 was updated to reflect more detailed and measurable actions to cover the period 2020-25. • The new Corporate H&S Strategy and Action Plan 2020 – 2025 was endorsed in June 2020 comprising 4 workstreams:- <ul style="list-style-type: none"> (i) FM compliance (ii) H&S Management System (iii) SHE Software (iv) Cultural Development • A detailed work programme has been developed to reflect this. • The 4 workstreams have been categorised as either 'compliance' or 'improvement' with prioritisation given to the former. • Workstream (i) and (ii) are wholly or mainly compliance and workstreams (iii) and (iv) are deemed as improvement projects. • The work programme has been prioritised as Top 5 compliance projects, other high priority compliance projects and all other programme projects. • Compliance surveys were completed by 03/22 • Progress is reported monthly to NIW EC and NIW Board as well as NIW Risk Committee each quarter. <p>A new centralised Facilities Management team has been established under the Head of Future Workplace. The FM team will deliver the outcomes required under workstream (i) FM compliance.</p> <p>A PPM schedule has been established for 900 NIW sites – to be rolled out over PC21. By March 2023, it was planned to increase the number of compliant sites from 62 sites to 262 sites; this was achieved on schedule.</p>		
PLANNED NEXT STEPS FOR DELIVERY		
<ul style="list-style-type: none"> • Continue to deliver detailed programme of work, monitor and manage programme • Revise costings and budget requirements to deliver the programme based on detailed work activities. The original estimate in the FD of £10m for facilities (2603 & 2604) has been revised to approx. £19.8m over the six year period 21/22- 26/27 (subject to review and potential change). The current estimate for H&S activities is £5m over the six year period 21/22- 26/27. Both Facilities and H&S Outputs will be subject to annual programmes and budgets. • Continue to report monthly to NIW EC and NIW Board on progress of delivery and spend against approved budget. 		
PROPOSED MAINTENANCE EXPENDITURE / ADDITIONAL OPEX from CAPEX		
<p>The proposed facilities maintenance expenditure over PC21 is currently forecast at £19.8m.</p>		
<p>The proposed H&S expenditure over PC21 is currently forecast at £5m.</p>		

Ongoing Capex requirements to maintain the compliance levels achieved by the end of PC21 will be included in the PC27 business plan.			
IMPACT OF SCOPE / PROGRAMME CHANGES ON CAPITAL DELIVERY / OUTPUTS PROGRAMME			
N/A			
IMPACTS ON CAPITAL OUTPUTS PROGRAMME LINKED TO TABLES 40, 40a & 40b			
Links to Tables Completed	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Comments Outputs from DO23 have no material impact on programme for projects in the Tables 40, 40a and 40b
RISKS & ISSUES ASSOCIATED WITH THIS DEVELOPMENT OBJECTIVE			
Price fluctuations due to volatile market.			
Resources, high demand for skilled trades and high staff turnover in the building trades.			
WIDER BENEFITS OF THIS DEVELOPMENT OBJECTIVE			
Benefits <ul style="list-style-type: none"> • Statutory Workplace Compliance. • ISO 14001 & ISO 9001 audit compliance. • Reduce risk of injury to the workforce, contractors and visitors. • Life cycle planning for all facility assets. • Asset information and condition register. • Reduce risk of prosecution or claims. • Centralised experienced team. 			
LINKAGE TO OTHER DEVELOPMENT OBJECTIVES			
At this point, based on present knowledge, there is no direct evidence to demonstrate that there is a link between this Development Objective and the other Development Objectives.			

Development Objective – Expenditure Summary

Table DO1 Expenditure on Development Objective (Nominal Prices)

Category	Spend to End March 2023 (£m)	Anticipated Future Spend (£m)	Anticipated Total DO Spend (£m)	Comment / Project Code(s)
<i>PPM</i>	1.8	6.5	8.3	KI737, KI800, KI801, KI802, KI803, KI804
<i>FM Remedial</i>	2.7	5.2	7.9	
<i>Consultancy</i>	1.6	2	3.6	
<i>Pilot Studies</i>				
Totals	£6.1m	£13.7m	£19.8m	
PC21 Projected Spend on Development Objective			£19.8m	

Table DO2 Facilities Expenditure on Development Objective

Project	21/22 (k)	22/23 (k)	23/24 (k)	24/25 (k)	25/26 (k)	26/27 (k)	TOTAL (k)
PPM Compliance Inspections	225	1,150	1,350	1,400	1,300	1,300	6,725
PPM Remedial Minor repairs	100	300	350	400	200	200	1,550
Base Maintenance Remedial Works	1,354	1,300	1,300	1,300	1,200	1,200	7,654
FM specialist support	310	350	450	400	400	350	2,260
Specialist Risk Assessments	805	100	300	150	150	150	1,655
	2,794	3,200	3,750	3,650	3,250	3,200	19,844

Table DO3 H&S Expenditure on Development Objective

H&S Projects	21/22 (k)	22/23 (k)	23/24 (k)	24/25 (k)	25/26 (k)	26/27 (k)	TOTAL (k)
Asbestos	258	13	13	13	13	13	323
DSEAR & personal gas monitoring	272	200	150	150	100	100	972
Lightning Protection		100	60	13	13	13	199
PUWER	41	363	800	600	400	300	2,504
Work at Height Equipment Surveys		140	20	20	20	20	220
Tree Safety Management		120	60	50	40	30	300
Occupational Road Risk	219	120	150	10	10	10	519
	790	1,056	1,253	856	596	486	5,037

DEVELOPMENT OBJECTIVE [DO]		
Ref	Development Objective	Sub-Programme
24	Smart Meters	19
GOVERNANCE		
Directorate	SRO	Project Lead
C&OD		
REASON DEVELOPMENT OBJECTIVE IS NECESSARY		
<p>Undertake sufficient pilots to adequately assess the effectiveness and associated benefits of smart metering technologies (AMR / AMI / NBioT) to substantiate continued investment in smart metering technologies post the PC21 mid-term review.</p> <p>The pilots will seek to provide proof of technology, assessment of range & reliability of signal strength, implementation issues / risks.</p> <p>An evaluation report, incorporating a long-term cost benefit analysis, on smart metering technologies will be produced to enable an informed funding decision to be made at the mid-term review stage.</p>		
DEVELOPMENT OBJECTIVE TO CONFIRM SOLUTION SPEND IN PC21 &/or PC27		
PC21 only <input type="checkbox"/>	PC27 only <input type="checkbox"/>	PC21 and PC27 <input checked="" type="checkbox"/>
PROJECT SCOPE		
<p>Left blank in Annex T.</p> <p>The scope of this development objective is to undertake pilots to assess the effectiveness and benefits associated with smart meters.</p>		
COMMENTARY ON MATERIAL CHANGES TO SCOPE		
N/A		
PROJECT OUTCOMES		
<p>The key outcomes include:</p> <ul style="list-style-type: none"> A better understanding of smart meter technologies and their effectiveness and benefits A medium and long term cost effective plan for the metering programme which facilitates the transition to smart meters <p>A key deliverable is an evaluation report, incorporating a long-term cost benefit analysis, on smart metering technologies to enable an informed funding decision.</p>		
COMMENTARY ON MATERIAL CHANGES TO PROJECT OUTCOMES		
N/A		
UR MONITORING EXPECTATIONS		
<p>Progress on the delivery of this objective will be monitored and reported on through the annual cost and performance report process as a minimum.</p> <p>This development output has been introduced by the Utility Regulator. It has been included so that the benefit of smart meter installation can be considered and tested based on work undertaken in the first half of PC21, in advance of committing to similar investment for the remainder of the price control period. We will engage with NI Water to establish the exact detail of the associated monitoring requirements but it is expected that NI Water will be required to:</p> <ul style="list-style-type: none"> Develop and submit a programme for the delivery of this objective. Engage with us on the timing of additional engagement, reviews and the 		

<p>determination of any outcomes flowing from the project.</p> <ul style="list-style-type: none"> • Provide a report on the benefits of smart metering informed by work undertaken in the early years of PC21. This should include a long-term cost benefit analysis. • Engage with UR staff at the PC21 Mid-term Review on the provision of funding for the remainder of PC21, noting UR comments on funding dependency in Annex I of the PC21 determination. 					
HOW UR MONITORING EXPECTATIONS HAVE BEEN FULFILLED					
<p>NI Water has had regular, constructive & positive engagement with the Utility Regulator during 2022/23. Meeting in October 22, November 22 and January 23 (see three sets of PowerPoint slides as evidence). During which we have provided updates on the performance of the smart metering technologies being trialled, whilst also obtaining absolute clarity from the Utility Regulator on their expectations re Smart Metering, the associated £2.5M Smart Metering uplift and the assumptions contained therein.</p>					
PROGRAMME					
See Master DO Programme v0 dated 07/07/23.					
KEY MILESTONES FOR DEVELOPMENT OBJECTIVE					
Description Key PC21 FD DO Milestones	FD21 Annex T Milestone Target Date	Status Vs FD21 TargePht	Current Milestone Target Date	Status Vs Current Target	Commentary on Material Milestone Date Changes <u>AND</u> <u>/OR</u> Reasons for any material Delay
Provide update to UR on Smart metering activities and outcomes to date	N/A	N/A	Q3 22/23	Complete	See three sets of PowerPoint slides (Oct22, Nov22 & Jan23)
Develop and submit a Smart Metering pilot programme	N/A	N/A	Q4 22/23	Delayed	Due to reaching the limit of authorised contractual spend on existing Metering Contract we have been unable to progress any further Smart Metering trials in advance of the PC21 Mid Term Review. Whilst progressing with the retender of Metering Contract we

					have focused our attention on knowledge sharing with other Water Utilities and obtaining information from User Groups and attendance at Smart Metering / Networking conferences.
Engage with UR on timing of additional engagement, reviews and the determination of any outcomes	N/A	N/A	Q4 22/23	Complete	See three sets of PowerPoint slides (Oct22, Nov22 & Jan23)
Produce a Year 1 Summary of findings from Key Account Smart Metering Pilot	N/A	N/A	Q1 23/24	On Target	N/A
Provide a report on the benefits of smart metering incorporating a long term cost benefit analysis	N/A	N/A	Q2 23/24	On Target	N/A
Engage with UR to facilitate a funding assessment at the PC21 Mid-term Review	N/A	N/A	Q2 23/24	On Target	N/A
KEY MILESTONES FOR SOLUTION INVESTMENT					
N/A	N/A	N/A	N/A	N/A	N/A
EXPENDITURE [See Also Table DO1 below]					
FD21 Annex T Estimated Total Cost of DO (2018/19 prices)	Forecast Cost of DO (Nominal prices)		Commentary on Material Total Cost Changes for DO		
Blank (in Annex T). £1.8M FD21 budget	£1.8m plus inflation up to nominal prices		Note that Annex T was blank. The FD was £2.5M less £0.7m (assigned to the		

		<p>Leakage Programme as highlighted in FD21 Annex I) = £1.8M</p> <p>Forecast cost is TBC following completion of the meter re-tender and subsequent compilation of long-term cost benefit analysis.</p> <p>NI Water are aware the long-term cost benefit analysis will provide an opportunity to maintain the existing £1.8M Smart Metering uplift - but will not facilitate a requirement for increased funding.</p>
PC21 FD Estimated Cost of Solution (2018/19 prices)	Forecast Cost of Solution (Nominal prices)	Commentary on Material Solution Cost Changes
Blank	N/A	N/A as there are no solutions. All smart metering costs in PC21 are being considered in the DO above.
ACTIVITY COMPLETED TO DATE AND OUTCOMES TO DATE (MARCH 2023)		
<p>NIW has provided detailed updates to the Utility Regulator on Smart Metering activities during 2022/23. Meeting in October 22, November 22 and January 23 (see three sets of PowerPoint slides)</p> <p>Highlights of which are as follows:</p> <p>Oct-22</p> <ul style="list-style-type: none"> • Sought clarification on Utility Regulators expectations on both PC21 £2.5M Smart Metering uplift and Development Output No24. • Provided an update on Smart Metering pilots – AMR / AMI. This included 70no. smart meters installed as a pilot across the Queens University buildings (see costs provided as evidence) • Outlined a proposed accelerated AMR installation strategy (requiring no additional funding) <p>Nov-22</p> <ul style="list-style-type: none"> • Utility Regulator provided absolute clarity on Smart Metering £2.5M funding elements and associated assumptions re AMR / AMI volumes, unit prices and ancillary costs. • NI Water confirmed understanding and partial agreement of Smart Metering £2.5M funding elements, raising concerns re AMI unit prices e.g. £261 NBIOT cost for PC21 Period vs £30 funding per Final Determination. • NI Water highlighted the need to retender the current Metering Contract as it did not envisage substantial requirements re Smart Metering ,therefore does not currently provide a framework nor competitive pricing, for the purchase of Smart Metering technologies. <ul style="list-style-type: none"> ▪ Primarily dumb & AMR meter focused. ▪ No contractual price re critical smart metering components: 		

- Antenna
 - AMI Module
 - Portal Access
 - SIM / Line rental
- Provided an update on AMI technology performance from Smart Metering Pilot as follows:

- **Wize AMI Module:**
Consistent excellent level of performance.



Circa 4KM Antenna range
Average antenna signal strength at meter 9.78 (out of 10).
Circa **97% of all 15min data** (Dec-Sep) intervals received.
Only criticism of current Wize Module is as a 'standalone' module it does not facilitate AMR 'Drive By' reading.

- **Diehl AMI Module:**



Diehl Radio (RDGP) technology performance is significantly below that of Wize Radio technology. Even within the expected / typical 600M antenna range - only circa 55% of the hourly data is being received.
 * >600M - only circa 20% of the hourly data is being received.

- **NBIOT Module:**
Circa 80% of hourly data received.

Jan-23

- NI Water provided an update on the Metering Contract re-tender
- Sought clarification / indicative Mid Term Review submission deadlines
- NI Water provided an update on Knowledge Sharing exercise with Scottish Water who have commenced a substantive Smart Metering Pilot – encompassing circa 4K meters in Inverness & Orkney.
Seeking to test a range of technologies – LoRaWAN | NBloT | Wize, from a number of metering manufacturers – Diehl | Elster | Itron
Scottish Water have found differing levels of performance from AMI technologies in differing settings – Internal / External / Rural and have determined there to be no single network solution.
- Provided an update on Smart Metering - Key Insights / Discussion Points from the Diehl Metering User Group.

In assessing both progress to date of NI Water's Smart Metering trials and external knowledge obtained - NI Water's proposed Smart Metering strategy, subject to Utility Regulator approval following assessment of cost / benefit analysis, will likely be a No 'one size (technology) fits all' solution – blended strategy!!!

<ul style="list-style-type: none"> • AMR 'Drive-By' as base solution. • AMI (NBIOT) – for Large Users. • AMI (Radio Freq /LoraWan) for high density areas e.g. Belfast. 			
PLANNED NEXT STEPS FOR DELIVERY			
<p>NI Water is currently progressing through the final stages of the Metering Contract retender. The retender exercise will deliver competitive market pricing for critical smart metering components as referenced above. These competitive market prices will then be incorporated into a revised long-term cost benefit analysis to be submitted to the Utility Regulator in adherence to PC21 Mid Term review timetable.</p> <p>NI Water will also produce a Year 1 Summary Report of key findings from the Smart Metering pilot.</p>			
PROPOSED MAINTENANCE EXPENDITURE / ADDITIONAL OPEX from CAPEX			
<p>It is envisaged there will be some OPEX associated with Smart Meters e.g. NBIOT SIM Card rental, LoraWan Network access charge or annual 3rd Party Portal access charges. Costs will be confirmed post completion of meter retender.</p>			
IMPACT OF SCOPE / PROGRAMME CHANGES ON CAPITAL DELIVERY / OUTPUTS PROGRAMME			
<p>There are no capital solutions in PC21 arising from this Development Objective.</p>			
IMPACTS ON CAPITAL OUTPUTS PROGRAMME LINKED TO TABLES 40, 40a & 40b			
Links to Tables Completed	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Comments N/A as no capital solutions exist
RISKS & ISSUES ASSOCIATED WITH THIS DEVELOPMENT OBJECTIVE			
<p>Delay in completion of Metering Contract retender could restrict NI Waters ability to submit a revised cost / benefit analysis as NI Water may not have competitive market prices for critical Smart Metering components. There is also a risk increased component, manufacturing & energy costs could result in significantly increased costs being submitted per the tender process which could exceed current UR funding and in effect could be cost prohibitive.</p>			
WIDER BENEFITS OF THIS DEVELOPMENT OBJECTIVE			
<p>The wider benefits of this Development Objective are:</p> <ul style="list-style-type: none"> • Availability of 30 minute meter consumption data (as opposed to monthly or 6 monthly meter reads) • More frequent and higher quality consumption data to inform better decision-making • Improved customer experience through having more granular information on their internal water usage 			
LINKAGE TO OTHER DEVELOPMENT OBJECTIVES			
<p>There could potentially be linkages to the following Development Outputs:</p> <ul style="list-style-type: none"> • 08 - Smart Networks – ITS Strategy • 13 - Real Time Network Modelling <p>However, confirmation of any linkage can only be confirmed once the pilots for the respective development outputs have scoped, implemented, and associated outcomes are known.</p> <p>The Head of Metering, Billing & Collections has joined the Smart Networks Project Team (Chaired by Head of Water) to maximise any collaborative benefit during the Boucher Road Smart Networks pilot.</p>			

Development Objective – Expenditure Summary**Table DO1 Expenditure on Development Objective (Nominal Prices)**

Category	Spend to End March 2023 (£m)	Anticipated Future Spend (£m)	Anticipated Total DO Spend (£m)	Comment
Civil				
M&E				
Materials / Equipment				
NIE				
Lands				
Site Investigation				
Consultancy				
Pilot Studies	£0.076M	£1.724M (plus uplift to nominal)	£1.8M (plus uplift to nominal)	The anticipated future cost will only be confirmed following completion of the meter re-tender.
Add Others as necessary				
Totals	£0.076M	£1.724M + uplift	£1.8M + uplift	
PC21 Projected Spend on Development Objective			£1.8M + uplift	

DEVELOPMENT OBJECTIVE [DO]		
Ref	Development Objective	Sub-Programme
25	Addressing scope uncertainty for the Mid-Term Review	12 & 16
GOVERNANCE		
Directorate	SRO	Project Lead
AD		
REASON DEVELOPMENT OBJECTIVE IS NECESSARY		
<p>This development output was proposed by the Utility Regulator in the PC21 Final Determination to keep the overall programme for the delivery of the scope/uncertainty schemes (131 nr) under review through regular updates.</p> <p>It was included to keep a focus on delivery in time for the MTR, so that the UR could plan for the receipt and assessment of submissions based on the most up to date information.</p> <p>The inclusion of the scope/uncertainty Block in AIR Table 40 and the CIM, along with the DAP/IEM information in Tables 40 and 40b should provide the regular updates needed by the UR.</p> <p>NI Water will update the UR if there were further material changes to the delivery plan (similar to the engagement with the UR to defer all the LWWP schemes to Batch 4).</p> <p>Project business cases to be submitted in four batches on 30 Sep 2021, 31 Mar 2022, 30 Sep 2022 and 31 Mar 2023.</p>		
DEVELOPMENT OBJECTIVE TO CONFIRM SOLUTION SPEND IN PC21 &/or PC27		
PC21 only <input checked="" type="checkbox"/>	PC27 only <input type="checkbox"/>	PC21 and PC27 <input type="checkbox"/>
PROJECT SCOPE		
<p>No change to scope from FD Annex T.</p> <p>Project business cases to be submitted in four batches on 30 Sep 2021, 31 Mar 2022, 30 Sep 2022 and 31 Mar 2023.</p>		
COMMENTARY ON MATERIAL CHANGES TO SCOPE		
N/A		
PROJECT OUTCOMES		
<p>Project business cases to be submitted in four batches on 30 Sep 2021, 31 Mar 2022, 30 Sep 2022 and 31 Mar 2023 to allow for determination on solutions.</p> <p>No change to PC21 FD project outcomes.</p>		
COMMENTARY ON MATERIAL CHANGES TO PROJECT OUTCOMES		
N/A		
UR MONITORING EXPECTATIONS		
<p>Progress on the delivery of this objective will be monitored and reported on through the annual cost and performance report process as a minimum.</p> <p>This development output has been introduced by the Utility Regulator. It has been included to ensure that the arrangements and programme for the completion and delivery of NI Water's planned scope/uncertainty submissions are kept under review and that we are appraised of any changes. We will engage with NI Water to establish the exact detail of the associated monitoring requirements, but it is expected that NI Water will be asked to submit regular updates on its plans for delivery to the UR directly and to other</p>		

stakeholders through the ORG.

Note that this links to other PC21 development objectives related to programme scope/uncertainty such as DO09 (WwPS / CSO Quality (UID) and WwPS (Capacity increase)), DO19 (LWWP Networks) and DO20 (LWWP Wastewater Treatment Works).

HOW UR MONITORING EXPECTATIONS HAVE BEEN FULFILLED

Scope Certainty batches have been submitted to the UR with the exception of a pack for LWWP - Belfast WwTW which will be submitted as a part of the Mid Term Review submission.

CIM reports have been submitted to keep the ORG stakeholders updated on a 6 monthly basis as well as monthly updates to NIEA as the main Stakeholder on a monthly basis through the Wastewater Investment Group.

Programme dates all met.

PROGRAMME

Scope Certainty Projects Submission

Batch	Date	NIAMP Outputs (Nr)	LWWP Outputs (Nr)	NIAMP Business Cases	LWWP Business Cases
1	30/09/2021	13	0	7	0
2	31/03/2022	26	0	15	0
3	30/09/2022	26	0	12	0
4	31/03/2023	21	22	29	16
Total		86	22	63	16

All milestones have been met.

See Master DO Programme v0 dated 07/07/23.

KEY MILESTONES FOR DEVELOPMENT OBJECTIVE

Description Key PC21 FD DO Milestones	FD21 Annex T Milestone Target Date	Status Vs FD21 Target	Current Milestone Target Date	Status Vs Current Target	Commentary on Material Milestone Date Changes <u>AND</u> / <u>OR</u> Reasons for any material Delay
Batch 1 Submission			30/09/21	Complete	
Batch 2 Submission			31/03/22	Complete	
Batch 3 Submission			30/09/22	Complete	
Batch 4 Submission			31/03/23	Complete	
2021/22 Q4 CIM			30/07/22	Complete	
2022/23 Q2 CIM			30/11/22	Complete	Submitted Dec 22
2022/23 Q4 CIM			30/06/23	On Target	AIR 23 submission

<i>Ad hoc</i> updates to UR as required			As required	On Target	
KEY MILESTONES FOR SOLUTION INVESTMENT					
All milestones for Solution Investment relate back to the Wastewater element of the Capital Programme and can be tracked through the Mid Term Review submission or via the programmed dates within linked Dos and the Table 40a submission.					
EXPENDITURE [state cost base for all costs e.g. FY18/19 – See Also Table DO1 below]					
FD21 Annex T Estimated Total Cost of DO (2018/19 prices)	Forecast Cost of DO (Nominal prices)		Commentary on Material Total Cost Changes for DO		
£0m	£0m		N/A		
PC21 FD Estimated Cost of Solution (2018/19 prices)	Forecast Cost of Solution (Nominal prices)		Commentary on Material Solution Cost Changes		
£0m	£0m		N/A		
ACTIVITY COMPLETED TO DATE AND OUTCOMES TO DATE (MARCH 2023)					
To date NI Water has completed the submission of all batches relating to Scope Certainty projects to the Utility Regulator. These were submitted in September 2021 through to March 2023 with each scheme comprising of an updated business case, updated IPAC costings and a high level analysis of the changes in scope from the original submission.					
Note a number of schemes may be included within a single business case.					
Scope Certainty Projects Submission					
Batch	Date	NIAMP Outputs (Nr)	LWWP Outputs (Nr)	NIAMP Business Cases	LWWP Business Cases
1	30/09/2021	13	0	7	0
2	31/03/2022	26	0	15	0
3	30/09/2022	26	0	12	0
4	31/03/2023	21	22	29	16
Total		86	22	63	16
Table 1 – Batch Submission Programme					
To aid in the delivery of scope certainty exercise a standard format was agreed internally for submission and a tracking of the projects expected for each batch was carried out.					
Within the table 40 submission in the AIR submission a section has been added to identify and monitor progress of those projects yet to be determined on. This changed significantly following the decision to defer all LWWP projects to Batch 4 as agreed with the Utility Regulator.					
Table 40b within the AIR submission details out DAP and IEM models which have relevance to PC21 Projects, including those to be determined on, and the ongoing monitoring of these is carried out through the Capital Investment Monitoring (CIM) submissions on a six monthly basis which follow the format of Table 40.					

PLANNED NEXT STEPS FOR DELIVERY			
<p>Currently NI Water are preparing responses to queries on the Scope Certainty exercise to the UR and will continue to engage on an ongoing basis.</p> <p>A Scope Certain pack relating to Belfast WwTW shall be submitted along with the Mid Term Review submission.</p> <p>Meetings with ORG stakeholders have commenced following the March submission to share the findings and impact of the Scope Certainty exercise and will continue in the run up to the Mid Term Review.</p>			
PROPOSED MAINTENANCE EXPENDITURE / ADDITIONAL OPEX from CAPEX			
N/A			
IMPACT OF SCOPE / PROGRAMME CHANGES ON CAPITAL DELIVERY / OUTPUTS PROGRAMME			
Determination of solutions will be essential for the delivery of outputs within the PC21 Programme.			
IMPACTS ON CAPITAL OUTPUTS PROGRAMME LINKED TO TABLES 40, 40a & 40b			
Links to Tables Completed	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Comments
RISKS & ISSUES ASSOCIATED WITH THIS DEVELOPMENT OBJECTIVE			
Work Complete, therefore only risk to programme remains awaiting determination before delivery of solutions.			
WIDER BENEFITS OF THIS DEVELOPMENT OBJECTIVE			
N/A			
LINKAGE TO OTHER DEVELOPMENT OBJECTIVES			
<p>This development Objective has linkage with a number of other Development Objectives and reported data through AIR. Any slippage in the Scope Certainty determinations would directly impact on:</p> <ul style="list-style-type: none"> • DO09 (WwPS / CSO Quality (UID) and WwPS (Capacity increase)) • DO19 (LWWP Networks) • DO20 (LWWP Wastewater Treatment Works). <p>In addition to this there is a linkage between the reported Table 40b – Delivery of DAPs and Integrated Environmental Modelling and the ability to meet the key milestone dates for submission of the Scope Certainty business cases.</p>			

NORTHERN IRELAND WATER LIMITED -ANNUAL INFORMATION RETURN

TABLE 48 SOCIAL AND ENVIRONMENTAL GUIDANCE PRIORITIES FOR WATER AND SEWERAGE SERVICES (2021-27)
Progress on the delivery of priorities

Drinking Water Supply and Demand			
Policy	DW Aim 1 - Manage drinking water quality risk in a sustainable manner from source to tap	Update on Delivery April 2023	BRAG
DW 1A	Maintain and review Drinking Water Safety Plans (DWSP) for all drinking water catchments. NI Water should continue to maintain and review drinking water safety plans for all drinking water catchments and also continue to implement a prioritised investment programme to manage drinking water quality risks informed by DWSPs.	DWSPs remain in place for all our WTW supply systems. This is a Core Business activity. The risk assessment covers all stages of the water supply system from source (catchment) to customer tap in line with Regulation 30 of the Water Supply (Water Quality) Regulations (Northern Ireland) 2017. DWSPs are reviewed at least annually, or following an event or occurrence or if a new or changing risk is identified, when an interim review will be carried out. DWSPs are submitted to the Drinking Water Inspectorate (DW) on an annual basis as part of the DWI annual Information Requirement or where there has been a significant change to the risk score. DWI 2022 DWSPs Annual Return made on 28/02/2023. The DWSPs will be used to inform the future capital investment programme as appropriate.	B
DW 1B	Put effective protection measures in place for drinking water sources. To help deliver this policy, NI Water should review the designation of all existing (and future) drinking water sources as Drinking Water Protected Areas (DWPAs) and ensure appropriate monitoring and regulatory protection measures are put in place.	DWPAs have been assigned by NIEA for our drinking water catchments in line with WFD principles. NI Water worked with NIEA during this process. DWPA meetings are in place through NIEA, which NI Water are active members. Through this NI Water and NIEA share raw water and WFD monitoring data and review monitoring programmes to ensure that appropriate monitoring is in place. NI Water raw water monitoring is in place and ongoing. Sampling frequencies are reviewed in line with regulatory requirements and risk assessment. This is managed as BAU.	G
DW 1C	Introduce sustainable catchment management at all drinking water sources. NI Water should continue to introduce sustainable land management practices at all drinking water sources through collaborative partnership working, where possible, and also help to educate those with private water supplies about the importance of protecting groundwater. Specifically, NI Water should develop a programme to implement appropriate recommendations developed through the SCAMP programme in PC15.	<ul style="list-style-type: none"> • Catchment Management Studies - Studies have been updated and made more useable as a lookup document, and will continue to inform the remainder of the PC21 work programme. • High Mournes Management Plan - The HMMP has been agreed by the associate working group to address grazing issues, erosion control, riparian planting, invasive species control, recreation/access, wildfire requirements and other land management improvements. Grazing issues have been addressed through the development of a new Silent Valley grazing licence, denoting Silent Valley as a common grazing area. Tender for Licence advertised locally at the end of March 2023. • Invasive Species control - Ongoing annually in Silent Valley catchment. Review completed to assess effectiveness and progress of NI Water's measures. • Ballinrees, Glenhordial and Carmoney Pesticide reduction projects – Passive sampling projects ongoing to monitor acidic herbicides in Carmoney, Glenhordial and Ballinrees sub catchments. • Farm Chemical Disposal Scheme carried out in the Derg catchment collecting a disappointing 1.5 tonnes of waste chemical despite much press coverage and promotion. • Water Catchment Partnership - Ongoing engagement with partners in message and spring/summer press releases on weed control and water quality protection. • Rush Control Events/BDG attendance - CAFRE/NI Water video on best practice rush control presented at these events with corresponding engagement work with grassland BDGs delivered to 4 groups to supplement the message on weed control. • DAERA/NI Water liaison on the future of agricultural policy and possible movement away from area-based subsidies ongoing. • National Trust UK Community Renewal Fund application - Mournes Community Renewal Through Nature project has been completed and delivered to Forever Mournes Partnership (on which NIW sit with National Trust leading). The project has provided a gap analysis of Mournes facilities for social value, natural capital, environmental value and land management and provides a springboard for future projects and business cases to improve the overall area. 	G

DW 1D	<p>Manage water quality risks from the water distribution system. NI Water should continue to effectively manage and operate the distribution system to maintain standards of drinking water quality, in line with current standards, and to prevent deterioration in drinking water quality including addressing iron exceedances and delivering the water mains rehabilitation programme to address water quality issues and consumer complaints.</p>	<p>NI Water manages water quality risks from the water distribution system as per best practice. This includes activities such as:-</p> <ul style="list-style-type: none"> - Service Reservoir cleaning Programme and associated Risk-Based Service Reservoir condition Assessments - Drinking Water Safety Plans have been developed and are reviewed and updated on an annual basis. - The methodology's for prioritising watermains rehab include both Water Quality and complaints information as drivers for priority of replacements. - Following the successful completion of mains conditioning pilots it is planned to utilise this technique in the future subject to approvals and subsequent funding. - Drinking water quality targets are in place for iron and other significant parameters, designed to protect public health. 	B
DW 1E	<p>Remove lead pipes and fittings from drinking water supply systems. NI Water should continue implementing its strategic lead policy and lead pipe replacement programme focusing on the aim of removing all lead pipes from the public supply system and improving compliance with current lead standards. In addition, NI Water should work with stakeholders to develop and implement a strategic risk-based approach for addressing lead compliance issues associated with private supply pipes and domestic distribution systems.</p>	<p>NI Water is delivering its programme of lead pipe replacements as per our PC21 Plan. NI Water had completed a pilot replacing both private and public elements of lead service pipes in 2018. The Lead Service Pilot Project Report was issued to DfI for comment on the 25th April 2018. During 2020 NI Water engaged with DfI who are seeking to develop an options paper on possible routes to resolve the longer term lead pipe issues with particular focus on private lead pipes for informing senior officials.</p>	B
DW 1F	<p>Manage water quality risks from defective water fittings systems. NI Water should continue to effectively monitor and regulate compliance with the Water Supply (Water Fittings) Regulations (Northern Ireland) 2009 and reduce the risk of contamination or waste of public water supplies through defective water fittings. It should continue its work with the WRAS Point of Sale working group, to help change the behaviours of manufacturers & retailers. In addition to this, NI Water should also continue to educate and improve public awareness of the importance of compliant water fittings and using licensed plumbers (Watersafe). NI Water should be encouraged to keep abreast of changes in industry standards and developments and should maintain systems and processes necessary to ensure effective regulation of water fittings.</p>	<p>NI Water monitor and regulate compliance with Water Supply Regulations as a BAU item.</p> <p>NI Water continues to proactive and reactively inspect customer premises for compliance with the water fittings regulations. NI Water is a fully participating and contributing member of the UK's water industry organisation known as the Water Regulation United Kingdom (WRUK). WRUK acts as one voice for the water industry on a national level and also assists water companies interpret the regulations on a consistent basis. Customers complying with their obligations contained within the regulations will significantly mitigate the risk of waste, undue consumption, waste and contamination of mains water supplies. Customer compliance with the Regulation 4 in the regulations and appropriate EU and BS standards as well as the Regulators (DfI) specification, will significantly reduce the risk of waste, misuse, undue consumption, erroneous measurement and contamination of water through non-compliant water fittings. This is a statutory obligation and as such will be an ongoing activity for NI Water. This activity will not end or change unless DfI amend the current regulations.</p> <p>Information on the companies obligations and powers, guidance to householders and notification forms are available on the companies website. The company supports the national schemes for licensed or approved plumbers.</p>	B
DW 1G	<p>Manage water quality risks from domestic distribution systems. NI Water should continue to work with stakeholders to ensure adequate resource and guidance is in place to ensure the effective monitoring and regulation of domestic distribution systems is maintained.</p>	<p>NI Water is not the lead owner of this action but is happy to work with relevant stakeholders as appropriate to ensure adequate resource and guidance is in place to ensure the effective monitoring and regulation of domestic distribution systems is maintained..</p>	A

Policy	DW Aim 2 – Meet the water demand needs of society, the economy and the environment	Update on Delivery	
DW 2A	<p>Provide access to efficient, safe, secure drinking water supplies. NI Water should continue to provide financial assistance towards the initial cost of providing a water connection to encourage connections to the public supply system (reasonable cost allowance (RCA)) and also to put in place and implement improved mechanisms to ensure integration between water investment and local development plans, to help ensure that customers' water needs are efficiently met in the future. It should also take account of any future requirements to increase access to drinking water in public places.</p>	<p>In relation to financial assistance towards the initial cost of providing a water connection this is a core business activity under Article 76 of the Water and Sewerage Services (Northern Ireland) Order 2006. The financial contribution is set out in the current Scheme of Charges which is reviewed annually.</p> <p>In relation to local development plans NI Water provides assessments on water (and wastewater) capacity. This information is then incorporated into Preferred Options Papers and in preparing Draft Plan Strategy documents. DfI is also provided with this information.</p> <p>NI Water also reviews and responds to Draft Plan Strategies received from Councils, emphasising issues concerning soundness / unsoundness in regard to water and wastewater capacity information used in the council LDP process.</p>	B
DW 2B	<p>Water resource management and drought planning to inform long term investment needs. NI Water must deliver the WR&SRP and review it, in accordance with the legislation, energy considerations and any associated guidance, to inform subsequent price control periods.</p>	<p>An updated version of the technical guidance for the Water Resource & Supply Resilience Plan was published in May 2021. This followed a review of current best practise, with NI Water working with DfI and other key stakeholders.</p> <p>This updated technical guidance is being used for the development of the next WR & SR Plan which is currently underway with the draft plan due to be complete by July 2023 and the final plan being published early 2024 following consultation.</p>	B
DW 2C	<p>Put effective systems and processes in place to avoid over abstraction. NI Water should continue to develop, agree and implement water abstraction monitoring and management plans with NIEA.</p>	<p>Ongoing work with NIEA AIL team to review abstraction licences. Managed as BAU.</p> <p>PC21 Abstraction flow monitoring project to be delivered through PC21. During the PC15 Period all 23 of NI Water's operational WTWs' abstraction points were surveyed to determine what additional monitoring arrangements would be needed for any revised abstraction licences. Based on the findings of these surveys NI Water and NIEA mutually agreed on a priority list of 11 WTWs and 1 Impounding reservoir which should be taken forward for flow monitoring in PC21.</p> <p>The proposed solution is to implement 19no. flow monitoring arrangements at identified abstraction points, with 18no. quality monitoring and actuated valve systems for 6no. prioritised WTWs. This will result in compliance with revised abstraction licences; satisfaction of other environmental obligations associated with water abstraction through compensation flow monitoring and management; opportunities for operational efficiencies; and reduced exposure to health and safety risks through remote operation of valve systems. This option also allows for future installations of further quality monitoring and actuated valve systems at remaining identified abstraction points in following investment periods (such as PC27).</p>	B
DW 2D	<p>Encourage households and businesses to be water efficient. NI Water should continue to invest in education and public awareness campaigns to promote water efficiency and to highlight the link between water efficiency and lower energy bills. NI Water should continue to invest in its education team resources, including the waterbus and targeted Corporate Social Responsibility activity such as its monthly Cares Challenge. It should also be mindful of any new initiatives in GB regarding water efficiency.</p>	<p>The education team have been proactive in influencing consumer behaviour through effective education and community campaigns. They have successfully increased awareness of the need for water conservation and more environmental friendly lifestyle choices. Some of these educational campaigns have promoted and prioritised NI Water's key messages such as the importance of preparing for winter, water efficiency, bag it and bin it (preventing pollution), customer care and reducing single use plastic.</p>	B
DW 2E	<p>Deliver water efficient residential and commercial development. NI Water should implement measures to reduce average water consumption through sustainable development and work with the Department and other stakeholders to develop and implement policies in respect of retro-fitting water efficiency/recycling measures in homes and businesses.</p>	<p>The ability to drive and implement measures to reduce average water consumption through sustainable development will be influenced by wider local government decisions. NI Water has been liaising with DfI to get a view if there are any plans to include water efficiency standards within Building Regulations similar to E&W which is key step to influence this change. In addition there have also been discussion in relation to the introduction of a mandatory water efficiency label similar to the energy efficiency label.</p>	A

Policy	DW Aim 3 - Resource efficient drinking water treatment and supply chains	Update on Delivery	
DW 3A	<p>Achieve a Sustainable Economic Level of Leakage (SELL) in all supply systems. NI Water should continue to focus on achieving and exceeding the Sustainable Economic Level of Leakage (SELL) and strive towards to SELL targets set out in the WR&SRP. NI Water should also review and update the SELL at regular intervals consistent with practice in the industry. NI Water should also work with stakeholders to develop and implement proposals to reduce private supply leakage.</p>	<p>A development project is on-going in PC21 to define a best practice approach and methodology for targeted mains renewal for leakage reduction purposes. The outputs of this project will inform NI Water's approach to leakage reduction and links to Water Mains Rehab.</p>	G
DW 3B	<p>Improve the energy efficiency of the public drinking water supply system. NI Water should review existing water treatment and supply systems to identify how potential energy efficiency savings might be achieved and also develop and implement a programme of energy efficiency improvements across the water and sewerage infrastructure and asset base. In addition, NI Water should develop short and long-term energy efficiency targets specifically for PC21 and beyond into PC27.</p>	<p>Opportunities are being progressed to increase solar generating capacity, wind generation and energy storage throughout the PC21 period.</p> <p>NI Water are in the process of installing a total of 1MW of energy storage in three locations: Enniskillen, Drumaroad and Limavady. A 4.1MW battery is being installed at Dunore WTW, with civil work underway and commissioning expected by the start of 2024.</p> <p>Our main focus in terms of energy efficiency within the Water PL continues to be on pump optimisation. Within the PC21 period to end of March, through the Energy Portfolio Board 13 pump optimisation Business Cases have been approved with 3.3m kWh/annum energy benefits forecast. The main risk being experienced to date with this work is in relation to supply chain issues and delays in pumps being delivered. We have worked with pump manufacturer and they are building up a stock profile which we require in order to reduce lead times to <25 weeks.</p> <p>We have continued with Phase II of Adaptive Efficiency Control (AEC) at a further 5 No WPS sites, where the cost of energy throughout a 24 hr period is taken into account, along with resilience parameters, to pump water at the lowest energy tariff where possible. This initiative has proved successful and provided a positive return on investment.</p> <p>Moneymore borehole went live in the summer of '22, and has provided resilience benefits along with a reduction in our energy consumption in our central supply zone.</p> <p>Within Wastewater we have trialled two Digital Twin/Real Time Control technologies at Omagh WwTW and North Coast WwTW during the 22/23 FY. Both of these trials has been positive to date in terms of compliance and energy benefits and further rollout is being considered. We have received approval from NIEA following our Odour Control proof of concept trial at North Coast WwTW. This proved successful with over £30k/annum energy benefits being realised and Business Cases have been approved for further rollout of this approach at Carrickfergus, Ballymena and Whitehouse WwTW's. We have also implemented WwPS pump optimisation work - to balance flows in the network arriving at the WwTW, this is being trialled at the North Coast area.</p> <p>The initiatives above contribute to our PC21 Energy Reduce Use target of £1.3m and after 2 years we are profiled to be ahead of target in terms of benefits realised.</p>	G
DW 3C	<p>Increase the use of renewable energy in the public drinking water supply system. NI Water should consider further opportunities to invest in renewable energy generation (e.g. solar panels & wind turbines) to reduce running costs at drinking water facilities. NI Water should also consider generating renewable electricity through innovative management of drinking supply systems (e.g. generating hydro-power from excess water mains pressure). NI Water should consider the business merits of investing to save in other innovative areas of sustainability which can be employed in its business and to strive to increase the use of renewable energy in the public water system by also exploring the purchase of renewable energy.</p>	<p>NI Water have taken part in discussions with Scottish Water whom already have introduced pressurised hydro power across different assets. NI Water to use information from study to develop a plan for next steps for hydro and pumped hydro.</p>	G

DW 3D	<p>Reduce the amount of chemicals used in the drinking water treatment and supply systems. NI Water should minimise the amount of chemicals used in the drinking water treatment and supply systems by improving raw water quality through natural means such SCAMP and also by improving the water supply system to minimise the amount of chemicals needed e.g. orthophosphate. Initiatives, such as weed-wiping, should be further investigated and promoted in the agricultural industry to improve raw water quality.</p>	<p>A wide range of sustainable projects have been undertaken by the SCAMP team with multiple benefits and objectives, including the reduction of chemical usage in the water treatment process. These projects are planned to be completed in a programme throughout the PC21 period. Four weed-wiping projects have been completed and consideration is being given to future projects. This is in addition to the extensive INTERREG Source To Tap project which is led by NI Water and also involved pesticide initiatives including weed-wiping in the Derg catchment.</p>	G
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Flood Risk Management and Drainage			
Policy	FRMD Aim 1: Deliver Sustainable Flood Resilient Development	Update on Delivery	
FRMD 1A	To ensure land-use planning decisions are informed to help minimise flood risk. NI Water should put appropriate resources in place to effectively fulfil its legal obligations. Separate storm sewers should not be connected to the combined sewer system, where there are viable alternative options for managing surface water. NI Water should also ensure it has an appropriate system in place to effectively implement its powers in respect of consideration and suitability of SuDS when considering wastewater connections.	NI Water has resources in place to fulfil its statutory planning obligations. Competent advice is provided relating to flood risk and other impact potential recommending caution in planning determinations where flood risk exists or potential is not properly understood. In alignment with legislative powers incorporation of SuDS within new development site adoption agreements is now 'Business as Usual'. Separated storm sewerage is default design requirement for all new management of surface water.	B
FRMD 1C	Sustainable Drainage Systems (SuDS). NI Water should put appropriate resources in place to ensure that: (i) Sewers for Adoption (NI) remains relevant and reflects new and emerging policies; and (ii) it continues its work with the Department and other stakeholders, including councils, to promote the use of SuDS and to establish clear working procedures for implementation.	NI Water remains available to DfI Stormwater Management Group and policy development. NI Water is currently responding to DfI's consultation on 'Flooding and Sustainable Drainage'. NI Water remains committed to examining and adopting new policy in respect of sustainable drainage.	A
FRMD 1D	Design for drainage exceedance to be incorporated into all new drainage infrastructure. NI Water should put appropriate procedures and resources in place to ensure 'design for exceedance' requirements in Sewers for Adoption (NI) are effectively implemented in new developments.	'Design for Exceedance' is incorporated within new development adoption agreements where proposals are expected to demonstrate good design in respect of overland flow path and water egress location etc.	B
Policy	FRMD Aim 2: Manage the Catchment to Reduce Flood Risk	Update on Delivery	
FRMD 2A	Effective regulation of reservoir construction and maintenance. NI Water should comply with the provisions of the Reservoirs Act 1975 on a voluntary basis, in respect of its impounding and service reservoirs, until such time as the Reservoirs Act (Northern Ireland) 2015 is fully commenced.	NI Water does comply with the provisions of the Reservoirs Act 1975 on a voluntary basis, in respect of its impounding and service reservoirs and to that end has commenced regular inspections of the 44 impounding reservoirs. This is completed by a team of 12 inspection officers. (2 more are due to start in May 2023). Section 12 examinations are happening bi-annually by the Supervising Engineers (AECOM) and 10 yearly by the All Reservoir Panel Engineer. Works are ongoing at multiple reservoirs across NI Waters portfolio as a result of the previous Section 10 reports and this will continue over the next year. NI Water have commenced inspections of potential controlled service reservoirs aligned with our cleaning programme. These inspections will provide maintenance matters and matters in the interest of Safety (dictated by the all reservoir panel engineer) which will be addressed by a capital programme ensuring we retain Responsible Reservoir Manager Status. Section 12 examinations were carried out at 12 Service reservoirs. This inspections are annually with Section 10 Inspections carried out every 10 years. NI Water now has a fully accredited Supervising Engineer as a full-time member of staff.	B
FRMD 3B	Provide Sustainable Integrated Drainage in Rural and Urban Areas. To help deliver this policy NI Water will- (i) work with the Department and NIEA (amongst other stakeholders) and utilise evidence from its Integrated Environmental Modelling (IEM), DAPS and SWM tools and to identify and implement stormwater separation and infiltration reduction schemes to address unsatisfactory intermittent discharge (UIDs), pollution incidents, out-of-sewer flooding, surface water flooding and providing capacity for development (ii) contribute to any future development and implementation of sewerage recommendations and policies arising from the Stormwater Management Group in relation to future sustainable drainage systems.	Integrated Environmental Modelling is incorporated within the Catchment Based Outcomes working group of Wastewater Regulation Reform. NI Water is working in close collaboration with NIEA and other stakeholders to produce evidence to recommend appropriate development of regulatory policy. NI Water's objectives within Drainage and Wastewater Management Plan aims to utilise SWM tools including sustainable drainage to alleviate flood risk and/or development constraint pressure. NI Water remains available to DfI Stormwater Management Group and policy development.	G

FRMD 3C	<p>Manage 'private' drainage systems to reduce the risk of flooding. To help mitigate the impacts of PDI, NI Water will be expected to:</p> <ul style="list-style-type: none"> (i) continue to work with the other drainage organisations (DfI Rivers or DfI Roads) through FIPG, and other fora, to identify PDI to ensure a complete and up to date dataset is maintained ; (ii) include funding and resources for LWWP, DAPs, IEM and FIPG purposes to address impacts to the network arising from PDI ; and (iii) contribute to any future development of policy in this area. 	<p>NI Water has provided a response to DfI consultation on 'Flooding and Sustainable Drainage' and continues to be available to DfI Stormwater Management Group and Flood Investigation Planning Group (FIPG) or similar group as determined by current DfI review, for the development and uptake of new policy. NI Water continues to work with DfI LWWP to assess opportunities for blue / green infrastructure within Stormont Estate.</p>	G
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Policy	Improve Flood Resistance and Resilience in High Flood Risk Areas	Update on Delivery	
FRMD 4A	<p>Develop and maintain accurate information on flood risk NI Water must make progress towards the delivery of measures set out in the Executive's FRMPs (2021-27) and also contribute to the development of the next cycle of flood risk management planning for the 2027- 2033 period.</p>	<p>NI Water continues to be a member of the Floods Directive Technical Stakeholder Group (FDTSG). NI Water presented to FDTSG (31/08/21) in relation to measures (Enhanced DAPs) and provided prioritised programme to support final FRMP (13/10/21), NI Water continue to deliver to provided programme.</p>	B
FRMD 4C	<p>Reduce the number of properties at risk of sewer flooding. NI Water should continue to reduce the number of properties at risk of internal and external out-of-sewer flooding to meet the associated annual target set by the Regulator and continue to invest in its various education campaigns, including messages being delivered through online, web and social media, to ensure that the public is aware of the impact its actions have on the sewerage system.</p>	<p>NI Water is maintaining a register of properties at risk of internal (DG5) and external flooding. The register has developed in confidence in the intervening time with an established system of additions, investigation of root cause and removal by company action or other means now in place and informing the PC21 investment. Other corporate tools are being introduced to complement this work including sewer risk model and capacity mapping.</p>	B
FRMD 4D	<p>Deliver a programme of integrated surface water drainage schemes to alleviate flooding.</p> <p>(i) NI Water must broaden the scope of drainage area plans to be integrated by incorporating surface water management and integrated drainage design for exceedance in line with current UK best practice for Drainage and Wastewater Management Planning, the preliminary NI Integrated Drainage Investment Planning (IDIP) Guide and any future guidance issued by relevant bodies. Surface water management measures should be quantified and coordinated appropriately with the Integrated Environmental Modelling framework to assess the environmental impact of such measures in a drive to achieve Northern Ireland's Long-Term Water Strategy sustainability goals.</p> <p>To help deliver these policies NI Water must:-</p> <p>(ii) work with the Department, Councils and other stakeholders to develop and implement the sewerage aspects of integrated drainage schemes to manage surface water flooding in urban areas (incorporating storm drains, SuDS, sewers and watercourses);</p> <p>(iii) develop and implement a prioritised programme of Integrated Environmental Models (IEMs) / Drainage Area Plans (DAPs), targeting the 12 Areas of Potential Significant Flood Risk (APSFRR), as appropriate, including assisting in the development of integrated drainage modelling in specific locations on a case by case basis, where this has been identified as necessary through the preliminary NI IDIP Guide;</p> <p>(iv) progress integrated Drainage Area Plans and associated surface water management measures identified through the FRMPs; and</p> <p>(v) prioritise any work identified through the Flood Investment and Planning Group (FIPG).</p> <p>Through the Flood Investment and Planning Group (FIPG), NI Water should:-</p> <p>(vi) continue to contribute to the key functions of the FIPG;</p> <p>(vii) help to deliver a programme of integrated surface water drainage schemes to alleviate flooding;</p> <p>(viii) continue to assist in the development of integrated flood modelling in specific locations on a case by case basis, where stakeholders agree that this is necessary; and</p> <p>(ix) consider if the budget for 'integrated' DAPs could also potentially be used to fund any NI Water works identified through the FIPG.</p>	<p>NI Water continues to be a member of the Floods Directive Technical Stakeholder Group (FDTSG) and Flood Investment and Planning Group (FIPG). NI Water presented to FDTSG (31/08/21) in relation to measures (Enhanced DAPs) and provided prioritised programme to support final FRMP (13/10/21), NI Water continue to deliver to provided programme. NI Water is progressing its programme of Integrated Environmental Modelling on a prioritised basis. NI Water continue, subject to funding from DfI, to develop Integrated Drainage Models for identified Living With Water Programme (LWWP) areas. NI Water is also supporting the development of a Strategic Drainage Infrastructure Plan for Derry as part of the LWWP.</p>	B

Policy	Be prepared for extreme weather events	Update on Delivery	
FRMD 5C	<p>Effective flood emergency planning and delivery structures. NI Water is a key member of the Floods Strategy Steering Group (FSSG) and Civil Contingencies Group Northern Ireland (CCGNI) and should continue to contribute to delivering the group's key functions including a coordinated response from Government during flooding incidents and effective emergency planning,</p>	<p>NI Water has a well-developed Major Incident Plan that provides a fully planned reactive response to all types of emergency incident including out-of-sewer flooding. An audit of NI Water's emergency planning arrangements is completed by an independent Certifier annually and an Audit Report submitted to the Department for Infrastructure's Water & Drainage Policy Division.</p> <p>NI Water continues to contribute to several multi-agency flooding and severe weather planning groups (along with the other main drainage agencies, DfI Roads and DfI River) including:</p> <ul style="list-style-type: none"> • The Flood Strategy Steering Group (FSSG) (led by DfI Rivers); • The Flood Investigation Planning Group (FIPG) • The 'Regional Community Resilience Group' (RCRG); • Three, sub-regional, Emergency Preparedness Groups (EPGs) (North, South and Belfast); • The three EPG Flooding and Severe Weather Planning Groups and; • The EPG Communications' working group. <p>The Company is represented on the principal strategic emergency preparedness body for the public sector in Northern Ireland, the 'Civil Contingencies Group (NI)', and continues to keep pace with wider developments through involvement with UK water industry emergency planning groups.</p>	B

Environmental Protection and Improvement			
Policy	EP Aim 1: Sustainable Environmental Policy and Regulation	Update on Delivery	
EP 1A	Sustainable environmental policy. NI Water should continue to place greater emphasis on longer-term planning, to allow more time to develop and implement sustainable shared solutions and factor in climate change predictions on the future quality and quantity of raw water. This approach will help to deliver the objectives of the Northern Ireland Climate Change Adaption Programme (2019-2024). A primary platform for this is the Integrated Environmental Modelling framework, which assesses the impact of NI Water's assets on the receiving water quality.	A pilot study in the Clay Lake drinking water catchment is underway to ascertain the pollutant load and its impact on raw water intake which may be developed into further drinking water catchments which will take account of climate change predictions. This is with a view to holistic catchment benefits whereby changes to farming practices can lower drinking water treatment costs but also improve water quality across Northern Ireland.	G
Policy	EP Aim 2: Sustainably Manage the Catchment to Improve Water Quality	Update on Delivery	
EP 2B	Sustainable catchment management to reduce pollution. NI Water should continue to improve compliance with discharge consents regulated by NIEA and through its Integrated Environmental Modelling Programme has initiated stakeholder partnerships addressing other sources of pollution and priority pollutants, with a view to catchment-based connecting of NI Water assets that are impact and evidence based.	IEM PC21 modelling programme has been initiated and will complete all studies by 2025 in preparation for PC27 business planning. The modelling will help derive catchment based solutions targeting the key sources of pollution which impact water quality status across NI from all pollution sources including the agricultural sector. In conjunction with both internal and external stakeholders the IEM team are focused on cross departmental collaboration and several working groups have been setup to ensure information flow, strategic policies are aligned and collaboration is the fore front of decision making.	G
Policy	EP Aim 3: Effective and Efficient Wastewater Collection and Treatment	Update on Delivery	
EP 3A	Educating consumers to prevent inappropriate items entering the sewerage network. NI Water should continue its education programmes/campaigns and partnership working with environmental stakeholders to raise awareness of important issues. NI Water should also develop and implement new public awareness campaigns such as plastic pollution and seek to incorporate its Corporate Social Responsibility (CSR) activity when forging relationships with environmental stakeholders. In addition, NI Water should also carry out research to identify more sustainable alternatives to orthophosphate treatment and how best to reduce the amount of nutrients entering the wastewater system and alternatives to orthophosphate should be used, if they become available. Integrated Environmental Modelling may assist as part of the emerging approach.	The NI Water Educational team have during this period visited schools (Primary and Secondary) delivering talks/presentations on our key Bag it & Bin it messages such as flooding, pollution with a focus on the fats oils and grease message and what should & should not be put down the loo and sink. The team also attended and delivered community talks/events during this time. These visits were highlighted through a PR programme which issued information on the visit and relevant photographs to regional papers. We continue to communicate key Bag it and Bin it messages via an extensive PR and advertising campaign using TV/radio/print/social media.	G
EP 3B	Efficient, effective and compliant wastewater treatment. NI Water should continue with its catchment-based approach to wastewater treatment and conveyance, utilising its various modelling tools to inform project appraisals to deliver optimum long-term benefits. This will be done in conjunction with local councils to identify where wastewater treatment works need to be upgraded, to minimise areas where economic growth has to be restricted. NI Water should continue to explore sustainable wastewater treatment solutions to reduce treatment costs and improve compliance. NI Water should also continue planning for a new sludge disposal strategy and work closely with NIEA to develop and implement a WwTW flow metering plan.	NI Water is developing its approach to catchment based wastewater services, flow metering and overflow monitoring in collaboration with NIEA and under the oversight of Wastewater Regulation Reform. Prioritisation of wastewater treatment works upgrades including compliance risk and development constraint is delivered via NI Water business planning and liaison with Council is provided. NI Water seeks to extend its options for sustainable wastewater treatment and has recently restructured its asset management section to include dedicated research and innovation resource. NI Water has substantially developed a new sludge disposal strategy which will continue to evolve its implementation plan targeted at 2032 when current contractual practice ends. During this time NI Water will also explore business improvement opportunities in existing sludge management. NI Water continues to pursue and consider sustainable treatment technologies. A new site using willows has just been commissioned in conjunction with AFBI. Accelo-Fac and Phragmafibre technologies are being considered for several sites.	G

EP 3C	<p>Reduce unsatisfactory discharges from the public sewerage system. NI Water should continue to implement a long-term investment programme to address unsatisfactory intermittent discharge (which should initially be identified through Integrated Environmental Management and drainage studies) and a programme of flow monitoring at combined sewer overflows and emergency overflows, to identify problematic overflows, on the basis of prioritising the environmental needs of the receiving water. NI Water's focus should also be on deploying sustainable treatment solutions, like SuDS, within Drainage Area Planning, wherever possible, to reduce pressures on sewerage systems before discharge into the environment.</p>	<p>For PC21 the intention is to focus investment on flow measurement at CSOs to understand the magnitude of the problem. No investment has been included in the plan for sustainable treatment at overflows.</p> <p>Monitoring programme for CSOs/EOs, which have been prioritised initially on designated bathing and shellfish waters, was taken forward within PC15. To date 279 have been completed. The second phase of this is being taken forward within the PC21 Business Plan. NI Water has installed 83 monitors in 2022/23. Major work will be taken forward within PC21 to address the maintenance, reporting to NIEA and further upgrades to the telemetry system to accommodate these new assets, which will enable other parts of NI Water to use this information.</p>	G
EP 3D	<p>Sustainable and compliant private sewers and treatment systems. NI Water should continue to collaborate with NIEA to address environmental pressures related to private sewerage infrastructure, septic tanks and misconnections between the sewerage system and stormwater drains. NI Water should also continue to work with the Department on preliminary work to identify further policy needs in this area of misconnections.</p>	<p>A strategy has been put in place to address the misconnections in conjunction with NIEA/DFI.</p> <p>NI Water is currently responding to DfI's consultation on 'Flooding and Sustainable Drainage' which also contains inquiry in relation to new powers for NI Water to effect remedial action on misconnections.</p>	B
Policy	EP Aim 4: Maintain sustainable levels of water in the environment	Update on Delivery	
EP 4A	<p>Protect water resources through effective regulation and enforcement. NI Water should work with NIEA to help it to review the effectiveness of drinking water abstraction processes and complete a review of NI Water abstraction licences.</p>	<p>As highlighted within DW 2C there is ongoing work with NIEA AIL team to review abstraction licences which is managed as BAU. This includes the delivery of the PC21 Abstraction flow monitoring project in PC21.</p>	B

Water and Sewerage Services			
Policy	WSS Aim 1: Provide efficient and affordable water and sewerage services	Update on Delivery	
WSS 1B	<p>Manage future costs through innovative management of assets and infrastructure. NI Water should continue to prioritise maintenance needs over enhancement; keep the Capital Appraisal Guidance under review to ensure the right sustainable solutions are delivered; improve systems and processes associated with gathering asset information to inform investment needs; continue to deliver the company's Research, Development and Innovation Strategy; and invest in new technology and systems that improve operational efficiency and performance, as well as reducing future operational or maintenance costs. Integrated Environmental Modelling should assist in this regard.</p>	<p>As per the PC21 submission NI Water will continue the current water and sewerage investment policy of prioritising maintenance needs over enhancement. However it should be noted the increased pressure from growth especially in relation to the Sewage network. The consequence of this is a direct limitation on the availability of sewerage services to new development.</p> <p>The Capital Appraisal Guidance is regularly reviewed to ensure the right sustainable solutions are delivered as BAU</p> <p>In relation to improved systems and processes associated with gathering asset information to inform investment needs there has been a recent restructure within Asset Management including the introduction of a new role 'Head of Asset Information' which has seen a re-focus on the importance of data which will drive improvements in PC21 and also help to inform PC27 Planning. In addition the RDI team has been expanded to two teams with one dedicated to Sewage and the other Water. This has seen improvements in a number of areas including the development of WTW Pilot Plans which are being used to establish the most robust, economical solutions for improvements at our WTWs.</p> <p>Integrated Environmental Modelling will have limited if any input to this action.</p>	B
WSS 1C	<p>Transform water and sewerage assets and infrastructure through sustainable solutions. NI Water should continue to deliver its long-term strategy to transform its asset base to be less energy intensive, explore opportunities to invest in and generate renewable energy, such as hydro-power and solar panels, to reduce running costs, carefully plan and manage project risks by considering trialling projects and also identify, and secure, sufficient land early in a project phase, to give the option for larger footprint solutions with lower operating costs, if appropriate. Integrated Environmental Modelling should assist in this regard.</p>	<p>NI Water are implementing process reviews and submetering at major waste water treatment assets to identify energy efficiencies in the configuration, control and operation of the waste water process.</p>	G

Policy	WSS Aim 2: Provide high quality services to water and sewerage customers	Update on Delivery	
WSS 2A	<p>Provide high levels of service to all water and sewerage customers. NI Water should continue to:-</p> <ul style="list-style-type: none"> (i) adopt a risk-based approach to sustain current levels of drinking water quality compliance; (ii) reduce the number of properties that experience unplanned supply interruptions; (iii) resolve issues quickly and provide good communication to those customers that will be affected by both planned and unplanned supply restrictions; (iv) maintain a register of properties at risk of internal and external flooding and invest to remove all properties from this register in accordance with agreed levels of funding; (v) educate customers with important messages; (vi) achieve and maintain the sustainable economic level of leakage; (vii) maintain a register of properties at risk of receiving low pressure and invest to remove them from the register in accordance with agreed levels of funding; (viii) contribute to the development and delivery of an integrated drainage and wastewater infrastructure plan; and (ix) contribute to the development and delivery of Integrated Environmental Modelling (EMI). 	<ul style="list-style-type: none"> (i) AS per DW 1D NI Water manages water quality risks from the water distribution system as per best practice. ; (ii) NI Water have implemented key initiatives from our Interruption to Supply (ITS) strategy, such as post Interruption reviews to establish key learnings; utilised water tankers in response to interruption to supply events and engaged extensively with internal and external stakeholders. We have reduced lost minutes per property for our customers by over 60%. We have provided emergency restoration trailers for each Field Manager area to increase our response capability e.g. the use of specialist equipment such as flexible hoses, pumps, cross-connections and mobile PRVs. We will continue to develop our processes to further reduce lost minutes per property and will be engaging with colleagues in WPL, Sitaware Team and IOC to implement new procedures into our normal ways of working. PC21 capital investment will support further reductions in supply interruptions, reducing the number of lost minutes per property, and improving the level of service to our customers. We have been investing in a SMART Network capital programme for PC21, and our aim is to maintain a CALM network, increase visibility on all our water assets and using our new digital tools and data analytics through our SMART network project to monitor and control our field operations giving us a holistic view of the network. (iii) As per WSS 3A NI Water use a number of communication channels. As well as the traditional channels we have embraced the use of Social Media and Webchat. We have also increased the scope of our text messaging offerings to provide good communication to those customers that will be affected by both planned and unplanned supply restrictions;. (iv) As per FRMD 4C NI Water is maintaining a register of properties at risk of internal (DG5) and external flooding. The register has developed in confidence in the intervening time with an established system of additions, investigation of root cause and removal by company action or other means now in place and informing the PC21 investment. Other corporate tools are being introduced to complement this work including sewer risk model and capacity mapping. (v) As per WSS 2C NI Water continues to educate the public on key campaign messages, through an extensive PR and advertising campaign. (vi) As per DW 3A Leakage targets and the leakage capital investment programme for PC21 have been agreed and are currently being implemented. (vii) As BAU NI Water maintain a DG2 register of properties at risk of receiving low pressure and invest to remove them from the register in accordance with agreed levels of PC21 funding; (viii) As per FRMD 4D continue to contribute to the development and delivery of an integrated drainage and wastewater infrastructure plan; and (ix) AS per FRMD 4D NI Water is progressing its programme of Integrated Environmental Modelling on a prioritised basis. NI Water continue, subject to funding from DfI, to develop Integrated Drainage Models for identified Living With Water Programme (LWWP) areas. 	B
WSS 2B	<p>Maintain accurate information on water and sewerage assets, infrastructure and consumers' views. NI Water should continue to collect accurate and reliable information on customer complaints, to provide actionable data and to take account of customers' views, which will inform future investment and to continue its research to inform investment plans and improve the accuracy, reliability security and consistency of information.</p>	<p>NI Water continue to collect consumer research through Voice of the Customer (VOC) surveys and an annual omnibus survey. Under our VOC programme we survey all operational customer contacts and discuss results monthly with Production Lines and Asset Performance. Our annual omnibus survey gains the opinions of the silent majority who have not contacted NI Water.</p> <p>The mop up work is coming to a conclusion with the small balance of any cases transferring into the Metering & Billing team. There are also new processes embedded into the function to monitor data quality and to prevent data regression.</p>	B
WSS 2C	<p>Effective customer education and public awareness.</p> <ul style="list-style-type: none"> (i) NI Water should continue to assess the outputs of previous education and public awareness campaigns to enhance future proposals and develop effective partnerships with other organisations, where there are shared benefits of the campaign. (ii) NI Water should adopt a lead role in consumer engagement to promote the value of water. This should include working with stakeholders to set out a programme of work to improve consumer education and engagement, including pilots or trials to test the effectiveness of different approaches. 	<p>The NI Water education team have to date (01 April 22-31 March 2023) delivered 210 educational school visits on our key water efficiency messages to primary and secondary schools alongside 63 community visits. To complement these school talks, we delivered 171 water butts to schools and community gardens. We have also during this period organised a primary schools competition 'The importance of Peat Bogs' with a focus on how the protection and preservation of these unique habitats can not only enhance biodiversity and reduce carbon but can improve water quality and prevent flooding. The online water audit which was developed within the GetWaterFit platform is still offering customers the opportunity to discover their personal and household water consumption and associated carbon use. This tailored approach offers customers water efficiency advice and efficiency items such as four minute shower timers, toothy timers, save a flush bags and leaky loo strips delivered free directly to customers. An extensive advertising campaign including radio, outdoor and social media was also carried out during spring and summer 2022, concentrating on water efficiency in the garden and home.</p>	B

Policy	WSS Aim 3: Provide high quality customer service and customer information	Update on Delivery	
WSS 3A	<p>Consistent, accessible and timely customer information. NI Water should continue to keep customers informed with up to date information using a range of communication channels. NI Water should also investigate the benefits of new web and social media channels as an additional means of communicating with customers and should endeavour to enhance its customer self-service facility and seek to develop it to meet customers' needs and expectations and to improve their experience.</p>	<p>NI Water have delivered a full range of digital channels to communicate with our customers. Our Social Media and WebChat Team are available to handle customer enquiries 7 days a week from 08:00 and 23:00. We have also increased the scope of our text messaging offerings. The External Knowledge Base is continuously updated allowing customers to self-serve on a number of issues. We have also expanded the services available from our Self Service Portal with improved digital features to help our customers and employees. The Portal provides an enhanced customer experience with added functionality of simple to use and environmentally friendly processes. You can now apply online:</p> <ul style="list-style-type: none"> • If you need a New Connection for water or wastewater to our network • If you are a builder and need a Sewer Adoption (Article 161) • If you are a business that needs to discharge trade effluent or a customer with an existing trade effluent consent. <p>Customers can also Pay a Bill and Request a Septic Tank De-sludge through our Self-Service Portal.</p>	B
WSS 3B	<p>Improving and measuring the customer experience. NI Water should continue to seek to reduce the number of complaints received year on year, increase the number of contacts resolved at first point of contact by defining, measuring and using root cause analysis to improve customer experience and continue to work with stakeholders through the Consumer Measures and Satisfaction Working Group to implement agreed customer experience measures and continue to develop these measures through PC21 and consider benchmarking itself against other service providers.</p>	<p>NI Water have introduced 3 new customer measure in PC21: 1. Unwanted Contacts, 2. First Point of Contact Resolution, 3. Net Promoter Score (NPS). The targets against these measures have been set by the UR in the Final Determination and are reviewed and reported against on a monthly basis. Using our customer insights and data, we have developed a Customer Measures Programme to improve customer journeys, reduce contacts and ensure contacts are resolved first time wherever possible. Through membership of UKCSI, NI Water is continuing to measure its performance and benchmark against other utilities and organisations.</p>	G
WSS 3C	<p>Helping vulnerable customers in the community. NI Water should encourage equal access to its services by promoting and reviewing its Customer Care Register to support consumers in vulnerable and changing circumstances. The content and requirements of the Customer Care Register should be reviewed and updated in light of best practice emerging from the Regulator's Consumer Protection Programme and also from other utilities and service providers. NI Water should aim to achieve and sustain an appropriate number of consumer registrations on its Customer Care Register and the Regulator should set targets to increase customer awareness of NI Water's Customer Care Register and to measure the level of satisfaction of support provided to consumers in vulnerable circumstances.</p>	<p>NI Water continue to promote and review its customer care register. In 2022/23 our customer care register grew by 14%. We have a weekly Social Media Campaign, advertise in several relevant publications and in 22/23 commenced using paid social media adverts to further promote the register.</p>	B
WSS 3D	<p>Efficient and effective processing of customers' bills. NI Water should consider how it may best avail of new technologies to seek to improve the efficiency and accuracy of the 'meter to bill' process.</p>	<p>Customers who contact us by telephone are offered a Voice of the Customer survey, post contact. Where a negative score has been received we now proactively make an outbound call to the customer to better understand their reasoning for the negative scoring. We use the feedback provided to gain insight and drive improvement where required, with our colleagues across the business.</p> <p>Billing enquiries and written complaints are closely monitored through weekly reporting so trends / deviations are quickly identified and appropriate action taken if necessary. We are conducting a smart metering pilot with Queens University to assess the reliability of 3 different smart metering technologies which will in turn inform our smart metering strategy going forward.</p>	G

Policy	WSS Aim 4: Provide resilient and secure water and sewerage services	Update on Delivery	
WSS 4A	<p>Improve the resilience of water and sewerage assets, infrastructure and systems. NI Water should continue to assess the resilience of water and sewerage services, assets and systems to extreme weather events and other risks to inform future investment requirements. NI Water should review and continue the work already undertaken following the Regulator's Freeze Thaw and Industrial Action Reports.</p> <p>NI Water should also commence a programme of investment to improve and maintain the resilience of the wider water and sewerage asset base and system, prioritised as follows:</p> <ul style="list-style-type: none"> (ii) water supply; (iii) prevention of internal flooding; (iv) prevention of pollution and odour management; and (v) manage surface water to protect people and property. 	<p>The PC21 plan includes a number of resilience programmes not limited to:</p> <ul style="list-style-type: none"> - Resilience projects as included in the WR&SR plan which mitigate against Critical period events - New SR storage projects - Upsizing of strategic mains as informed by recent high demand events. - Surface Water projects as a result of the amended scope of the Drainage Area plan models scope being extended in PC15 - On-going programme of investment in PC15 for DG5 (Internal Flooding) & UIDs (Prevention of pollution) 	B
WSS 4B	<p>Effective incident planning and preservation of services. NI Water should maintain and review the effectiveness of emergency plans, systems and processes to preserve service delivery during a major incident, <u>continue to educate and increase public awareness about the importance of insulating supply pipes to prevent bursts and leakage during freezing conditions</u> and ensure water and sewerage assets and infrastructure are safe. It must comply with any guidance issued by the Department.</p>	<p>NI Water has a responsibility under Article 295 of the Water and Sewerage Services Order 2006 to meet the requirements of 'The Preservation of Services and Civil Emergency Measures (Relevant Undertaker) (Northern Ireland) Direction 2010' (PSCMD). The Department requires NI Water to confirm that all requirements of the Direction are being met by annually submitting the following to DfI:</p>	B
Policy	WSS Aim 5: Utilise NI Water assets to provide wider benefits for the Environment and the Community		
WSS 5A	<p>Manage the NI Water estate to promote recreation, biodiversity and cultural heritage. To help deliver this policy NI Water should:-</p> <ul style="list-style-type: none"> (i) develop and implement a long-term estate management strategy; (ii) permit access to its land/assets to facilitate recreational activities, where it is safe to do so and financial resources permit; (iii) look for opportunities to enhance or restore biodiversity within its estate; (iv) continue to develop partnerships to deliver sustainable catchment initiatives; (v) continue to implement its Biodiversity Action Plan; (vi) adopt and implement the Protocol for the Care of the Government Historic Estate; and (viii) develop a long-term plan to bring its assets, covered by this, up to a suitable standard and maintain them going forward. 	<ul style="list-style-type: none"> • NI Water Recreation and Access implementation of policy and guidance now belongs to the Safety, Health and Environment Team. • Catchment Team continue to assist in R&A applications for public access to landholding • Catchment Team continue to work with Lands Team to develop a better digital understanding of NI Water landholding • Catchment Team continue to work with many external stakeholder groups (High Mournes Working Group, Forever Mournes Partnership, various Wildfire groups at strategic and practical level) to jointly develop catchment management measures • Catchment Team continue to work with many external stakeholder groups (High Mournes Working Group, Forever Mournes Partnership, various Wildfire groups at strategic and practical level) to jointly develop catchment management measures • Catchment Team continue to work NIW colleagues to develop corporate Biodiversity Strategy • Catchment Team continue to work developing new partnerships with eNGOs to deliver catchment initiatives. 	G
WSS 5B	<p>Using surplus water and sewerage assets to provide recreational benefits for the community. NI Water should progress the assessment of 'unused' reservoirs to determine the approach to disposal, develop a policy to ensure surplus water and sewerage assets with recreational value are transferred within the public sector, where appropriate, and ensure that future NI Water Estate Management Plans align to Executive policy on disposal of assets, including Community Asset Transfer.</p>	Complete	B

Policy	Information and Security		
IS	<p>(i) NI Water must comply with the requirements of the Networks and Information System (NIS) Directive on cyber security and the requirements of the General Data Protection Regulation (GDPR), which both came into force in May 2018;</p> <p>(ii) NI Water must have in place arrangements to protect its business critical assets and information. The fast pace of the risks from, and understanding of, cyber threats means that NI Water must constantly review and revise its practices against increased cyber security threats in line with advice from Defra, as the lead government department for the water sector, together with the Centre for the Protection of National Infrastructure (CPNI), the National Cyber Security Centre (NCSC) and Competent Authority while ensuring its infrastructure and assets are safe and secure;</p> <p>(iii) Security measures on assets must be upgraded and maintained to meet required standards as laid out in the Preservation of Services and Civil Emergency Measures Direction and associated guidance; and</p> <p>(iv) Agreed security and emergency standards for physical security, personnel security and cyber security must be followed. NI Water must ensure that all Critical National Infrastructure (CNI) sites continue to meet the latest security advice, and security issues identified at other sites, to bring them up to the required standard. During the PC21 period, it should continue with training staff to respond to major incidents in line with emergency guidance and protocols.</p>	<p>NI Water will continue to have appropriate systems and procedures in place to monitor PSCEMD compliance. Arrangements in place include the annual PSCEMD and CNI site audits. Regular liaison with CPNI, NCSC and the competent authority will ensure policies and practices are reviewed and revised as required.</p> <p>NI Water continue to implement technical and people and process controls driven by the Cyber Resilience Programme in order to improve security as required by the Networks and Information Systems (NIS) Regulations. These new initiatives will enhance the already established cyber defences in protecting NI Water infrastructure and assets, including CNI sites, from cyber-attacks. The Cyber Resilience Programme is a multi-year, multi-million pound investment. NI Water is also cognisant of the requirements of GDPR.</p>	G



Annual Information Return 2023

Section 3

Level of Service Methodologies

Northern Ireland Water

Level of Service Methodology

DG2 - Pressure of Mains Water

This document has been laid out in accordance with the guidance provided by the Utility Regulator in the Annual Information Return Reporting Requirements 2018: Section 7 – Levels of Service Methodology Appendix

DG2 – Pressure of mains water

1. Methods and procedures

2. Extract from DG2 register

- provide an extract from DG2 register

3. Sources of information

4. Scope and coverage

5. Assumptions and exclusions

- including any assumptions made for surrogate for the reference level.

6. Other issues

- provide any further information on issues that have arisen in the report year that impact on your methodology for reporting in the Annual Information return.

The procedure for the investigation and recommendation for removal and addition of properties to the DG2 Register is based on the 'DG2 NIWL Procedures April 2010' document produced by the Leakage Data Management Unit. The objectives of the investigation are as follows:

- i. Removal/Addition of DG2 entries on the register as a result of more robust data being available (Better Information).
- ii. Removal/Addition of DG2 entries resulting from 'capital interventions' and 'operational improvements' (Company Action).
- iii. Investigation of customer 'Low Pressure' complaints.

1. Methods and Procedures

Investigation of customer 'Low Pressure' complaints

Where low pressure complaints have been identified through the contact centre, the process of action is as follows:

- Contact Centre informs customer of known network planned or unplanned events in the area or determines if problem may be with customer supply only
- The first responder visits the property to determine if their pressure is a legitimate complaint. If the pressure at the property is assessed as being a potential DG2 issue, the complaint is passed to the Water Modelling Team for investigation

The Water Modelling Team undertakes a DG2 Investigation (see below) and additions and removals are processed accordingly. Any amendments to the DG2 Register are now captured on NIW's ESRI Portal allowing all departments within the business to access and view the current DG2 Register in relation to any customer contacts.

DG2 Investigations

The objective of a DG2 site investigation is to acquire the necessary data to allow a more detailed assessment to be carried out. The 2 key elements of this investigation are the logging of the water pressure and the gathering of accurate height data for both the logging point and DG2 property connection point (also known as the ferrule location). In keeping with 'DG2 NIWL Procedures April 2010' the following procedures are followed:

- Logging points are identified within the network, which do not exceed 250m in distance from the DG2 stopcock
- The logging points are within the same DMA/PMA as the DG2 property
- A unique logger ID is clearly assigned to the logging point

- An accurate elevation of each logging point is provided using GPS. The logger transducer level is measured as a dip from the cover level
- Boundary polygons around the pressure logger location are created using a 250m radius to allow the associated properties to be assigned to the relevant logger
- A pressure log and elevation may be taken in adjoining DMAs. This is to assist in identifying any potential for a BV change to improve the pressure at the DG2 property or to help validate the hydraulic model for any further solution engineering
- A new ferrule elevation is produced for each property using NIW's Supply Points and Connected Properties, both of which are GIS layers. The ferrule point elevation is used to determine the pressure at the ferrule point which is calculated using the Total Head at the pressure logger location

Due to the rural nature of some DMAs it is not possible in some exceptional cases, i.e. groups of DG2 entries within individual DMAs, to undertake logging within 250m of the DG2 property as set out in the NIW methodology. In these instances a field visit is undertaken to identify suitable locations that can be logged (e.g. stopcocks) within 250m of the DG2 property. If no suitable locations are identified an alternative approach is to pressure log a number of Fire Hydrants to enable an accurate pressure profile of the DMA to be established, supported by the hydraulic models.

Updating DG2 Register

Following field testing, all data is analysed and the findings are proposed as :

1. The addition/removal of DG2 properties due to 'better information'
2. The removal of DG2 properties resulting from 'capital interventions' or 'operational improvements'

If the data collected verifies that properties that are in receipt of a pressure >15m, then the DG2 properties are recommended for removal. Properties removed are supported by a DG2 analysis including logged data.

Those properties identified as being in receipt of a pressure <15m remain on the Register as supported by a DG2 analysis including logged data.

Additional properties within logging areas determined to be in receipt of pressure <15m are recommended for inclusion on the register as supported by a DG2 analysis including logged data.

DG2 Interventions

A DG2 Investigation Report (DIR) is undertaken for all interventions to verify that the DG2 problem is satisfactorily resolved before the DG2 property can be removed from the DG2 Register. A DIR is required for both 'capital interventions' and 'operational improvements.'

The outputs of the DIR include a table showing the following information for all properties included in the analysis:

- property address
- Total Head
- ferrule elevation and calculated pressure
- property elevation and calculated pressure

The outputs also include a detailed map showing the following information:

- Pointer Property data showing UPRN reference at each property (NIW receives biannual updates from Ordnance Survey Northern Ireland)

- Water pipes, fittings i.e. SVs, Fire Hydrants (FHs), terminating nodes etc.
- DMAs and PMAs
- Background Vector maps
- Pressure logging points

The Water Modelling Team update the DG2 Register based on the outputs from the DIR reports.

2. Extracts from DG2 Register

Table 1 overleaf illustrates an extract from the latest DG2 Register, using dummy addresses. Note that the UPRN is a unique identifier for every property.

Table 1 – DG2 Extract

UPRN	Status_Date	Status	Building_Number	Primary_Thorfare	Town	Postcode	County	DMA	Pressure	Pressure Type	Reason for addition/removal	X_Coords	Y_Coords
185000001	07/09/2022	In Register			Belfast	BT00 1AB	Antrim	Central	14.61	Surrogate	Pressure below the minimum requisite	290001	437001
185000002	07/09/2022	In Register			Belfast	BT00 1AB	Antrim	Central	14.65	Surrogate	Pressure below the minimum requisite	290002	437002
185000003	07/09/2022	In Register			Belfast	BT00 1AB	Antrim	Central	14.69	Surrogate	Pressure below the minimum requisite	290003	437003

Note that actual addresses have been replaced with dummy values.

3. Sources of information

DG2 Investigation Reports (DIRs) are available for all 'capital interventions' and 'operational improvements' and these include the relevant data and reports to validate changes to the DG2 register. These reports are available for reference if required.

4. Scope and coverage

The DG2 Register was refreshed in 2020 and 2021 and the ongoing maintenance of the DG2 register will continue through the addition of properties due to 'better information' and the removal of properties due to 'company action' supported by DIR reports.

5. Assumptions and exclusions

NI Water does not currently have in place a permanent pressure monitoring network and is not able to identify exclusions arising from intermittent network incidents or infrastructure changes. A permanent pressure monitor is being installed in each Pressure Managed Area during PC21, and these may be of use in the future for identifying DG2 exclusions. Assumptions for AIR are identified in the methodologies described above. A surrogate pressure of 15m has been used to identify DG2 properties.

Northern Ireland Water

Levels of Service Methodology

DG3 Supply Interruptions

This document has been laid out as follows:

- 1.0 Objective & Aim**
- 2.0 Reporting Requirements**
- 3.0 Definitions**
- 4.0 Procedure**
- 5.0 Records**
- 6.0 Reporting**
- 7.0 Void Properties**
- 8.0 'No Water/Low Pressure' Complaints**

Appendix A – Roles and Responsibilities

Appendix B – Process Flow Diagram – Unplanned Interruptions

Appendix C – Process Flow Diagram – Planned Interruptions

Appendix D – Pro forma - Interruption Record Sheet

Appendix E – Pointer 2.1 Specification Extracts

Appendix F – CRC Call Scripts for 'No Water/Low Pressure' Complaints

Appendix G – DG3 Interruptions to Supply Register Extract

1.0 OBJECTIVE & AIM

To identify the number of properties affected by planned and unplanned supply interruptions lasting longer than 3 hours, 6 hours, 12 hours and 24 hours.

The aim of the register is to allow verification and audit of the reported information for DG3 and to enable the identification of the properties affected. It should contain information on the timing, duration and cause of each interruption and sufficient information to enable all properties affected by interruptions lasting more than three hours to be identified. Therefore, the register should include:

- properties affected (by name and location or number and street);
- date and time of interruption;
- duration of interruption and time supply restored;
- cause of interruption;
- notice given; and
- the name of person responsible for entering records in the system.

The DG3 Interruptions to Supply Register is compiled and held by C&O Services in Westland House.

2.0 REPORTING REQUIREMENTS

The information to be reported within Table 2 of the Annual Information Return (AIR) is as follows:

2.1 Line Descriptions

Line	Description
5	More than 3 hours unplanned
6	More than 6 hours unplanned
7	More than 12 hours unplanned
8	More than 24 hours unplanned
9	More than 3 hours planned and warned
10	More than 6 hours planned and warned
11	More than 12 hours planned and warned
12	More than 24 hours planned and warned
13	More than 3 hours unplanned caused by third parties
14	More than 6 hours unplanned caused by third parties
15	More than 12 hours unplanned caused by third parties
16	More than 24 hours unplanned caused by third parties
17	More than 6 hours unplanned due to overrun of planned and warned
18	More than 12 hours unplanned due to overrun of planned and warned
19	More than 24 hours unplanned due to overrun of planned and warned

Note: Interruptions should be reported under each relevant time band so that the category for interruptions exceeding:

- 3 hours also includes all interruptions lasting more than 6 hours;
- 6 hours also includes all interruptions lasting more than 12 hours; and
- 12 hours also includes all interruptions lasting more than 24 hours.

Each interruption should be classed as a single interruption event and should be recorded under only one of the four categories of: unplanned or unwarned, planned and warned, unplanned caused by third parties and, unplanned or unwarned due to overruns of planned and warned interruptions. If there are a significant number of overruns between 3 and 6 hours, the number should be reported in the commentary.

Further guidance, if required may be found in the Annual Information Return Reporting Requirements & Definitions Manual 2015, Issue 1.0 – March 2015.

3.0 DEFINITIONS

3.1 Interruption

Supply interruptions are defined as when properties are without a continuous supply of water, whether planned or unplanned, warned or unwarned. A property shall be considered as without a supply when water is lost from the first cold water tap – taken as being **operationally equivalent to $\leq 3\text{m}$ pressure at the main (adjusted for any difference in ground or property level)**. This can be inferred from local logging, network modelling or a customer contact indicating a loss of supply which was caused by the company operation and has not been demonstrably restored. Multiple-storey buildings shall be considered on a case-by-case and floor by floor basis, with properties on a particular floor being considered as receiving the same pressure.

Supplies may be affected by other factors, for example, lower pressure through the flushing of mains, or restrictions on use. These are covered under the DG2 and DG4 procedures.

3.2 Duration

Duration is defined as the length of time for which properties are without a continuous supply of water.

3.3 Start Time Determination

Start time is when water is lost from the first cold water tap at a property – taken as being **operationally equivalent to $\leq 3\text{m}$ pressure at the main (adjusted for any difference in ground or property level)**.

In the event of applicable telemetry data or logging being unavailable, the time should be determined from the earliest of:

- As advised by “no water” contact from customer (where not due to a customer side issue);
- Indications from flow or pressure monitoring to infer a change in supply; or
- Verified modelled data (calibrated, maintained, reflective of the network at the time of the incident and validated with contemporaneous flow and/or pressure data).

The company shall gain confirmation by consulting complainants (if any) and/or customers at high points on the system.

3.4 End Time Determination

End time is when water is restored to the first cold water tap at a property – taken as being **operational equivalent to $> 3\text{m}$ head of pressure at the main**.

In the event of pressure logging being unavailable, the time should be determined from the latest of:

- As advised by notification from customer;
- Indications from flow or pressure monitoring to indicate return to normal supply conditions; or
- Verified modelled data (calibrated, maintained, reflective of the network at the time of the incident and validated with contemporaneous flow and/or pressure data).

It is the responsibility of the company to demonstrate that supply conditions have been restored and available to all previously affected customers from the time determined from the above. In the absence of physical evidence, the company shall gain confirmation by consulting complainants (if any) and/or customers at high points on the system.

The company shall apply the precautionary principle, using the start and finish times and the properties affected that will give the highest supply interruption value in the event of uncorroborated or conflicting data.

Note: The time on the customer's warning card is used to determine whether or not a planned and warned interruption overruns. It is not used to determine the End Time.

3.5 Event

Event is the term used by NI Water to describe its involvement in an abnormal occurrence in its services to customers.

3.6 Planned & Warned Interruption

This is where notice of an interruption (> 3 Hours) is provided to properties affected at least 48 hours in advance of the beginning of the interruption.

- If a planned and warned interruption commences before the Planned Start Time, the interruption is re-categorised as an unplanned interruption.
- If a planned and warned interruption commences after the Planned Start Time, the time between the planned start and actual start is not included in the duration.
- If a planned and warned interruption finishes before the Planned End Time, the time between the actual end and planned end is not included in the duration.
- If a planned and warned interruption finishes after the Planned End Time, the interruption is re-categorised as an unplanned interruption (overrun of a planned interruption).

3.7 Unplanned/Unwarned Interruption

This is when an unplanned or a planned and unwarned interruption to supply occurs. Properties receiving less than 48 hours' notice of a planned interruption (> 3hrs) are to be counted as 'unplanned' and reported under this category. Any planned interruption that is started before the planned date and time contained in the warning notice, whether this occurs within a 48 hour warning period or not, is also to be re-categorised as 'unplanned'.

3.8 Overruns

When a planned and warned interruption continues beyond the end of the warned time, for whatever reason and whether or not a customer has been advised during the shutdown that an overrun is going to occur, the interruption is described as an overrun and is reported separately.

3.9 Third party interruption

A third party is defined as anyone who does not act for, or on behalf of NI Water. This category is intended to cover damage to NI Water's mains or other equipment that directly or indirectly results in an unplanned loss of supply to enable the damage to be repaired. Where a third party interruption is not caused by a third party, but repair may be delayed by a third party, for example when a gas main runs close to a water main and needs to be isolated, the whole of the duration on the interruption must be reported as an unplanned interruption. Companies can describe this event in their commentary.

3.10 Electrical Failures

Interruptions to supply caused by electricity supply failures must be reported as unplanned, unwarned interruptions, and identified in the records as caused by electrical failure to enable the details to be included in the NIAUR Return commentary.

3.11 Properties affected by more than one interruption during report year

Properties, which are affected by more than one interruption during the report year, should be reported separately for each interruption. This means, for example, that a property affected by three supply interruptions would be reported three times, once for each interruption. Where properties are affected by repeat interruptions on the same day, these should only be counted separately where there is a minimum of one hour between the interruptions for the supply to be available (e.g. to refill storage tanks). When shorter gaps occur, the duration is counted from the start of the first interruption until the last restoration of supply.

4.0 PROCEDURE

It should be established before any work is carried out on site, which function is responsible for the collection of information for the interruption record. In general, whichever function operates the valves to cut off supply at the site of an interruption is also responsible for the collection and ownership of the information.

4.1 Planned Interruptions (lasting > 3 Hours)

Planned interruptions to supply arise as a result of work being carried out by different teams within the Customer & Operations Directorate or by functions within other NI Water Directorates. These have been identified as follows:

- Planned interruptions carried out by Networks Water (Distribution and Leakage),
- Planned interruptions carried out by Capital Asset Delivery and,
- Planned interruptions carried out by Developer Services, Metering & Billing.

Regardless of the source of the interruption to supply, all planned interruptions must follow the procedures for giving the appropriate warnings. Each team/function is responsible for collecting and recording all appropriate information to be included in the DG3 Interruptions to Supply Register.

All affected properties must be notified by letter, or card drop, at least 48 hours before the shutdown, notifying them of the planned times and dates of shutdown and the restoration of supply. A minimum of 48 hours warning must be given for planned interruptions greater than 3 hours. The start of the warning occurs when the last card has been delivered or the last letter sent to the properties affected.

If for example, there is estimated to be 500 properties to be warned, the card drop operation starts at 9.00am on 2nd July and finishes at say 2.00pm, then the warning period starts at 2.00pm for 48 hours and work should not start on site on the planned interruption until 2.00pm on the 4th July.

A copy of the letter of notification or the information contained on the card used in the card drop should be sent to the following for information – Customer Relations Centre Front Desk, Work Planning Unit, Telemetry Control Centre, Functional Manager and relevant Northern Ireland Fire and Rescue Service. For contact details see Appendix A.

The number of properties affected by a planned interruption should be determined by the most accurate means available at the time of:

- a) planning activity;
- b) the interruption; or
- c) any subsequent more detailed investigation.

At the time of the initial assessment this is likely to be by property count or an estimate based on local knowledge. For recommendation for estimating numbers of properties, see paragraph 5.3.

4.2 Planned interruptions carried out by Networks Water

Field staff on site are to record all information on a paper pro forma, known as an Interruption Record Sheet (see Appendix D). The pro forma contains the raw data associated with the interruption and is retained for audit purposes. The information is also communicated to the Work Control Centre (during normal working hours) and the Telemetry Control Centre (outside normal working hours) where staff will already have opened an event on iNform - the Company's Incident Management System (IMS) and will use the information to update/populate the remaining fields associated with the event.

During the course of an interruption, field staff will continue to provide the WCC or TCC with regular updates on progress and the IMS event details will be updated accordingly. When the interruption has ended, the IMS event record will be closed with a status of 'Closed – DG3 Record Required' and the Field Manager responsible will review the details with the Field Technician and amend the information as necessary.

The following fields of information are required to enable an IMS Planned Interruption Event to be created:

- Cause
- Warning details
- Planned start / finish
- Public narrative
- Incident location / areas affected

The following IMS fields should be updated during the course of a planned interruption event:

- Estimated restoration time / date
- Actual restoration time / date
- Water sampler contacted
- Public narrative

4.3 Planned interruptions carried out by Capital Asset Delivery or Developer Services, Metering & Billing

Capital Asset Delivery and Developer Services, Metering & Billing use a combination of a paper pro forma (Appendix D) and an MS Excel spreadsheet template, known as a Contractor Return Sheet, to record the details of interruptions as the contractors that carry out the work for these departments do not have access to IMS. Each month, an appropriate member of Capital Asset Delivery or Developer Services, Metering & Billing will sign off the information to be recorded retrospectively on IMS. Details of the spreadsheet template can currently be obtained from C&O Services in Westland House.

IMS planned interruption events relating to Capital Asset Delivery should be created by Capital Asset Delivery staff in advance of planned interruptions taking place on site. The Warning Issued Date and Time, Planned Start Date and Time, Planned Restoration Date and Time, cause of interruption and properties affected are the only details that can be input in advance. This information will be used by staff in the CRC when providing updates to customers.

During the interruption, the contractor will record the details of the interruption, including the Actual Start Date and Time and Actual Restoration Date and Time, on an Interruption Record Sheet. The contractor will also summarise the information from the Interruption Record Sheets for each month in a Contractor Return Sheet. Contractor Return Sheets will be forwarded to Capital Asset Delivery staff who will use the details to update the IMS interruption event records. This task will be completed both monthly and retrospectively. A copy of the Contractor Return Sheets is also to be forwarded to C&O Services for incorporation in the monthly DG3 Composite Report.

4.4 Procedure for Ensuring that Customers Receive Adequate Notification in the Event of Planned and Warned Interruptions

Reference: The Water Mains Rehabilitation Framework Northern Ireland Guidance Note (GN07) - DG3 Interruptions Reporting for IMS October 2016

For a planned interruption to be classed as planned and warned, customers must be provided with at least 48 hours' notice in advance of the interruption to the water supply at their property. Therefore, if it is the Company's intention to interrupt the supply at 12 Main Street from 8am to 6pm on 8th June, the warning must be communicated no later than 8am on 6th June.

Contractors have a contractual requirement to provide customers with 48 hours' notice in advance of supply interruptions.

Guidance Note GN7 provides detailed and comprehensive guidance on the required action to be taken by contractors in relation to the notification of customers of the planned intent to interrupt the water supply. The guidance note defines the roles, responsibilities, notification periods and procedures for planned and unplanned interruptions during and after normal working hours.

Contractors should ensure familiarity and compliance with the guidance note at all times.

Formal on-site verification process to ensure customers are receiving the minimum 48 hour notification

Each month, NI Water's WMRF Clerk of Works (CoW) will attend two notification card drops for each contractor, to witness the start of the notification period, i.e. when the last card/letter has been delivered.

The CoW will provide formal confirmation to NI Water's Asset Delivery DG3 Compliance Team of when the last notification was delivered prior to the start of the planned interruption.

The monthly audits carried out by the CoW will be collated into a report to be reviewed at quarterly WMRF Project Board meetings.

Any instances of failure to provide the minimum 48 hours' written notification will result in the following:

- the interruption will be designated and reported as 'unplanned'
- the contractor concerned will receive a formal written warning and a non-conformance report (NCR) will be issued which could impact on reduced work allocation going forward
- NI Water's Executive Committee will be advised of any failures.

4.5 Unplanned Interruptions carried out by Networks Water

The event trigger for an IMS unplanned interruption event to be created is 4 'no water' complaints in a single DMA within an hour, or when the WCC/TCC is informed by the Field Technician that the water is being turned off.

As defined above, unpredicted events such as mains bursts, or interruptions that are planned but where customers are not warned at least 48 hours in advance, are classified as unplanned interruptions.

Unplanned interruptions are mainly the responsibility of Networks Water and information should be recorded using IMS.

Following receipt of a 'No water/Burst main' complaint the Field Manager will investigate as soon as possible and provide 'status updates' to the Work Control Centre on the progress of remedial works. The Field Technicians on site will record all information on a paper pro forma (Appendix D) and the pro forma will be retained for audit purposes. The Field Technicians will also provide regular timely updates on the progress of such events to the Work Controllers, Duty Managers and Telemetry Operators. Details including the cause of interruption, the time the repair is commenced, the estimated restoration time and the time the repair is complete are to be recorded on IMS.

Area Managers may be made aware of interruptions other than as a result of customer calls. In such cases, the Field Managers should ensure that relevant details are passed to the WCC for processing.

Details input to IMS are to include the Interruption Start Time, as noted by the first affected customer, the time at which the supply was restored and whether or not a third party or an electrical supply failure was the cause.

The following fields of information are required to enable an IMS Unplanned Interruption Event to be created:

- Time of first call
- Estimated restoration time
- Public narrative
- Incident location / areas affected

The following IMS fields should be updated during the course of an unplanned interruption event:

- Public narrative
- Cause
- Mains type / material
- Repair commenced date / time
- Supply restored date / time
- All properties restored date / time
- Water sampler

Note: A record should be created for every burst main, even if the properties affected are zero as there is a requirement to record all bursts on DG3.

4.6 Unplanned interruptions carried out by Capital Asset Delivery or Developer Services, Metering & Billing

IMS unplanned interruption events relating to Capital Asset Delivery are created by WCC and TCC staff in the same way that other IMS unplanned interruption events are created. Sometimes, the contractor may be unaware that an unplanned interruption has occurred, for example, if the contractor forgets to open a valve. The IMS process ensures that such interruptions are captured by the Company. In cases where the contractor is aware of having caused an unplanned interruption, for example, a burst main, the contractor will provide details of the interruption in the Contractor Return Sheet.

4.7 Number of properties affected

An estimation using practical evaluation and contouring from NIW's GIS system will be used to give a more accurate estimate of drawdown of the system.

5.0 RECORDS

Overall responsibility for DG3 records lies with the Head of Water. However, the DG3 Register is compiled and held by C&O Services in Westland House.

Interruption records relating to Networks Water (Distribution and Leakage) are recorded on IMS. Interruption records relating to Capital Asset Delivery and Developer Services, Metering & Billing are also recorded on IMS but on a retrospective basis. As Capital Asset Delivery and DMB contractors do not have access to IMS, their details are initially recorded on an MS Excel spreadsheet template before being entered onto IMS by NI Water staff.

5.1 Interruption Recording using IMS

When an event is created on IMS, the event can be one of the following:

- Unplanned Interruption
- Planned Interruption
- Flooding
- Water Quality

IMS can be used to specify whether or not:

- an Unplanned Interruption event was caused by a third party
- a warning was issued for a Planned Interruption event
- the amount of warning was sufficient for a Planned Interruption event
- a Planned interruption event occurred during the planned time

In this way, IMS can be used to report on all four regulatory categories of interruption.

When all information has been entered onto IMS, the information is then extracted in the form of a report. A number of reports are available for selection including:

- RPT1151 – Historical DG3 Event Records Report,
- RPT1152 – Historical DG3 Property Records Report,
- RPT1155 – ‘Live’ DG3 Unplanned Interruption Records Report,
- RPT1156 – ‘Live’ DG3 Planned Interruption Records Report,
- RPT1183 – ‘Live’ DG3 Property Records Report,
- RPT1184 – ‘Live’ DG3 Event Records Report.

When an IMS interruption event record has been created and closed with the status of ‘Closed – DG3 Record Required’, it is then the responsibility of the Field Manager to review the record and to amend the details according to the information provided by the Field Technician and information obtained through the GIS polygon process. Once the Field Manager is satisfied that all amendments have been made, the record should be approved and passed to the Area Manager for review and approval and to the DG3 Customer Services Coordinator for review and approval. If the AM or DG3 CS Coordinator find any issues with the information, they have the option to reject the record.

Most of the information required will be able to be input directly onto the input screen and will probably not be altered. Some information e.g. house numbers and addresses will be initially estimated by the Field Technicians or the Field Manager. However more investigative work may be required to give an accurate number of houses. The interruption record can then be updated when this information becomes available. For procedures for obtaining house numbers and address see paragraph 5.3 below.

Area Managers and Field Managers are to ensure that all relevant details are recorded and input to the system as soon as possible, and any paper records or notification cards are retained for general audit purposes.

On-call staff are to gather all relevant information and report to the Networks Water Area Manager as soon as possible the next working day.

The following Audit Process is aimed at ensuring the timely completion of audit tasks and approval ahead of monthly reporting on DG3 to the Board.

DG3 / IMS Reporting / Audit Process

Action No.	Action	Date
IMS Report from the Field		
1	<ul style="list-style-type: none"> • WC opens a New Event in IMS when an event trigger is reached. • The IMS Event is updated by WC throughout the incident with information from Field Staff. • WC saves the event when the incident is closed in the field. 	
2	<ul style="list-style-type: none"> • DG3 CS Coordinator sends the MTD Rapid No Water Complaints Report to the FM's on a Monday, Wednesday and Friday morning. 	Every Monday, Wednesday and Friday morning.
3	<ul style="list-style-type: none"> • The MTD Rapid No Water Complaints Report lists all NIW No Water calls. • FM filters the report for his own area, sorts by date and DMA which then group calls. • The FM opens the IMS Report RPT1184 – Historical Report – DG3 Interruption Records. <ul style="list-style-type: none"> ○ Enter Start Date. ○ Remove tick from Null box. ○ Enter End Date ○ View Report. ○ Click Export Drop Down Menu ○ Export to Excel ○ Filter Report to own area. • The call groups are then checked against an appropriate DG3 Interruption Record and the Technicians, Interruption to Supply – Site Record. • From the three reports the FM then adjusts, if required, and Save the IMS Report. • At this stage don't Approve to allow the event to remain with the FM until all audit checks are completed at the end of the month. 	Ongoing throughout the week/month.
4	<ul style="list-style-type: none"> • The above process will be completed for each week of the month. • L4 will also check the IMS Event Report throughout the Month and raise queries as appropriate. 	Ongoing throughout the week/month.
DG3 Reporting and Audit Process		
5	<ul style="list-style-type: none"> • DG3 CS Coordinator produces Draft DG3 KIP Report, DG3 Reporting – 081014. • Two tabs; <ul style="list-style-type: none"> ○ Unplanned >6hr Summary ○ AIR & KPI Reporting 	By 1 st working day of the new month.

DG3 Reporting and Audit Process		
6	<ul style="list-style-type: none"> Level 4 uses the above monthly Unplanned >6hrs Summary Report to identify a number of L4 Monthly Audit checks. L4 meets with the Field Managers to arrange the Audit Checks. 	<p>1st working day + 1 day.</p> <p>1st working day + 1 day</p>
7	<ul style="list-style-type: none"> Level 5 checks the monthly Unplanned >6hr Summary report for his area against IMS Events and adjusts as necessary. 	1 st working day + 1 day
8	<ul style="list-style-type: none"> FM reports back to Level 4. L4 approves/saves the audited Events in the IMS system. 	1 st working day + 5 days
Monthly Sign Off		
9	<ul style="list-style-type: none"> L4 emails DG3 CS Coordinator that Monthly Audit checks have been completed. 	1 st working day + 7 days
10	<ul style="list-style-type: none"> DG3 CS Coordinator produces DG3/Rapid Comparison Checks report. This Zip file contains a number of reports; <ul style="list-style-type: none"> Individual FM folders with DG3 ID Event files. Comparison Checks Summary. <ul style="list-style-type: none"> Red/Amber/Green against start/finish/No. props Properties not recorded on IMS. <ul style="list-style-type: none"> Used to check No. of prop queries. 	1 st working day + 8 days
11	<ul style="list-style-type: none"> L4 discusses above report with FM's. L4/FM's report back to DG3 CS Coordinator. 	1 st working day + 10 days

5.2 MS Excel Spreadsheet Template – Contractor Return Sheet

Planned interruptions undertaken by Capital Asset Delivery and Developer Services, Metering & Billing will most likely be carried out by a number of contractors. The Contractor's Representative should gather all appropriate information on a paper pro forma (Appendix D) and then transfer this information to the Contractor Return Sheet. The Contractor Return Sheets should be collated at the end of each week/month and signed off by an appropriate member of Capital Asset Delivery or Developer Services, Metering & Billing staff and sent to Services for inclusion into the DG3 Register. All pro forma should be stored by Capital Asset Delivery and Developer Services, Metering & Billing for Audit purposes. Details of the Contractor Return Sheet can currently be obtained from C&O Services in Westland House.

5.3 Property numbers and Addresses

It is a requirement of NIAUR that the numbers of properties and address details of properties affected by interruptions to supply exceeding 3 hours are recorded. The numbers of properties and address details should be determined by the most accurate means available at the time. This is likely to be by one of two methods.

a. Visual Property Counts

In the case of small-scale interruptions, a Field Technician may have sufficient knowledge to determine the number of properties affected by carrying out a visual property count. Details should initially be recorded by hand on a paper pro forma including location, type and cause of interruption, and 'valve off'/'valve on' times. Each week, the Field Manager should review the Interruption Record Sheets with his Field Technicians and the details provided should be used to update the IMS records.

b. GIS Polygons

In the case of large-scale interruptions, the number of properties affected by an interruption should be determined using a GIS polygon. A Map Redline Request should be submitted using the IMS DG3 Interruption Details page. Then in CARtomap (the Company's Corporate Asset Register/GIS intranet facility), a redline polygon should be drawn around the affected area and assigned to the IMS request which should appear in the dropdown list associated with the DG3 Areas Layer of the Water workspace (see Editing Menu). Back in IMS, the Map Redline Request should be updated to retrieve the address details of the properties within the polygon and hence, the number of properties affected.

Field Managers should base the redline polygons on the details provided by the Field Technicians. In the case of interruptions where rezoning is carried out, it may be necessary to obtain address details from within more than one polygon.

5.4 Records of Interruptions

In general, all interruptions to supply should be recorded. However, there are large numbers of very short interruptions to supply associated with Leakage-related activities and Developer Services, Metering & Billing. These interruptions are routine, inconsequential and last no longer than 30 minutes. Information about these interruptions is held by managers in Networks Water (Leakage) and Developer Services, Metering & Billing and is therefore not required for the DG3 Interruptions to Supply Register. Discretion should however be used in all cases. If difficulties arise or there happens to be an exception to the type of routine interruption referred to above that gives rise to an interruption that lasts for more than 1 hour then, this interruption should be recorded. Guidance on which interruptions should be recorded is to be given by Networks Water (Leakage) and Developer Services, Metering & Billing managers.

In general: Routine interruptions lasting less than 1 hour need not be recorded as part of the DG3 Interruptions to Supply Register except at the discretion of the Field Technician or Field Manager.

All interruption records entered onto IMS are to be approved by at least the Area Manager responsible by the 1st working day + 5 days, as per the Audit Process described earlier in the document. Interruption records belonging to Capital Asset Delivery and Developer Services, Metering & Billing should be sent to C&O Services by the same date.

- When a Field Manager approves an IMS DG3 record, an e-mail reminder is automatically forwarded to the Area Manager.
- When an Area Manager approves an IMS DG3 record, an e-mail reminder is automatically forwarded to the DG3 Customer Services Coordinator.

Automatic e-mail reminders to approve the DG3 records are sent to the DG3 Customer Services Coordinator on a monthly basis.

5.5 Historical records

All associated documentation is to be kept for seven years.

5.6 Audit Trail

The maintenance of audit trails is very important. During AIR audits the Reporter would more than likely want to investigate several interruptions and the associated documentation. It is therefore imperative that all records corresponding to individual interruption records, including pro forma, are stored locally for audit purposes.

5.7 Amendments to Information

It is recognised that the details entered at the time an IMS event record is created are estimates and that it may be necessary to update the details following the GIS polygon process. The IMS Internal Narrative should be used to record the details of any amendments, over and above those that occur as a result of the normal process of updating records. All amendments to the base data contained in IMS or information changed during the course of the development of the DG3 Composite Report File, must be supported by a detailed explanation.

6.0 REPORTING

6.1 NI Water Reports

IMS can be updated on a continuous basis, as and when interruption events occur, throughout the life of an 'Active' event, and after an event has been closed on the system and a corresponding DG3 interruption record has been registered. Monthly reports can be generated following the completion of quality assurance checks carried out by Area Managers. These reports are used by the C&O Services function to compile a DG3 Register for each month and corresponding KPIs.

The following reports are generated by C&O Services for Management Information:

- Monthly DG3 Composite Report including monthly DG3 Register
- Monthly DG3 KPI Report
- Annual DG3 AIR Table 2 Lines 5 to 19 Report (as defined by the Annual Information Return Reporting Requirements and Definitions Manual).

6.2 Development of the DG3 Register and KPI Report

As described above, interruption data for each month is extracted from the various data sources (IMS and Contractor Return Sheets) used by the various work streams (Networks Water (Distribution and Leakage), Capital Asset Delivery and Developer Services, Metering & Billing) and copied to a DG3 Composite Report File held by C&O Services at Westland.

Copies of the original records are retained in their unaltered state. The records are then sorted according to the four regulatory categories of interruption:

- Unplanned Interruptions
- Planned and Warned Interruptions
- Unplanned Interruptions Caused by Third Parties
- Unplanned Interruptions due to Overruns of Planned and warned Interruptions

and further sorted according to the four regulatory time bands:

- More than 3 hours
- More than 6 hours
- More than 12hours
- More than 24 hours

The interruption records are subject to a series of audit checks to ensure that the details have been captured in accordance to the regulatory guidance. For further information on the development of the DG3 Register, please refer to the DG3 LoS Methodology.

6.3 Regulatory Report

The Finance & Regulation Directorate will report to Northern Ireland Authority for the Utility Regulation (NIAUR) on an annual basis.

7.0 VOID PROPERTIES

Within NI Water, Asset Information Development (AID) is primarily responsible for ensuring the databases, systems, standards and processes are in place to support the Corporate Asset Register (GIS/Ellipse). According to the definition, a void property is a type of connected property. The GIS picks up the following twelve property types, including void properties:

- Approved Built
- Approved Derelict
- Approved Under Construction
- Candidate Built
- Candidate None
- Candidate Under Construction
- Historical Built
- Historical Derelict
- Historical None
- Historical Under Construction
- Provisional Built
- Provisional Under Construction

Unless AID is specifically asked to exclude void properties when running queries, their GIS address lists will include any of the property types listed above.

There is a delay in updating the GIS with property status information.

Relevant extracts from the Pointer 2.1 Specification can be found in Appendix E at the back of this document (Pages 22 to 26 of 31).

8.0 'NO WATER/LOW PRESSURE' COMPLAINTS

Within NI Water, CRC call agents adopt a specific line of questioning with the customer to establish the cause of complaint including complaints relating to low pressure and no water.

A copy of the latest CRC call scripts for handling low pressure/no water complaints can be found in Appendix F at the back of this document (Pages 27 & 28 of 31). Provided the customer provides an accurate response to the questions asked by the call agent, the risk of wrong classification should be negated.

Appendix A – DG3 Interruption to Supply - Roles & Responsibilities

Customer Relations Centre (Normal Hours)

- Log 'no water' / 'burst main' complaints into RapidXtra system;
- Use IMS system to provide up to date information to customers;
- Use 'Operational Announcements' functionality to share information;
- Adhere to agreed communication routes.

Bretland Work Control Centre (Normal Hours)

- Create IMS interruption event records and close with either a status of 'Closed – DG3 Record Required' or 'Closed – DG3 Record Not Required'.

Work Planning Unit

- Normal hours – create a Work Order and inform area supervisor immediately;
- Update the Ellipse System following 'status calls';
- Ensure Work Orders are closed out.

Customer & Operations Directorate - Networks Water

- The Area Managers and Field Managers are responsible for the procurement of information for DG3 within Networks Water.

Developer Services, Metering & Billing

- Developer Services, Metering & Billing is responsible for reactive meter maintenance, proactive meter exchange and the installation of new meters. An interruption to supply to the property arises during the course of the installation.

Field Technicians

- Proactively provide regular timely updates on the progress of events (bursts, repairs etc.) to Work Control / Duty Managers / Telemetry operators:
 - Nature of the problem and any relevant details
 - Time repair commenced
 - Estimated restoration time
 - Repair complete;
- Provide any additional information to Field Managers to allow completion of the corresponding DG3 record e.g.
 - Polygon details
 - Rezoned properties.

Field Managers

- Inform Customer Services and Work Planners of planned interruptions providing details of area & number of properties affected and proposed duration of interruption;
- Assess extent of unplanned interruptions and organise remedial work;
- Inform Work Planners on completion of remedial work;
- Provide supporting information on number of properties affected and reasons for interruption.
- Ensure Field staff are adhering to agreed processes and communication routes;
- Review records created by Work Controllers:
 - Ensure start / finish times are accurate
 - Ensure property data is accurate & required fields complete;
- Review corresponding DG3 record for each event;
- Draw polygons, where required, and automatically link to IMS record;

Field Managers (continued)

- Sign off DG3 records for submission for approval by Area Manager;
- Update Major Incident records.

Area Managers

- Ensure Field Managers are adhering to the agreed process / timescales;
- Check / query records signed off by Field Managers;
- Sign off DG3 records for approval by DG3 Customer Services Coordinator.

Telemetry Control Centres (Out of Hours)

- Log 'no water'/'burst main' complaints into Work Planning (Ellipse) system;
- Create IMS interruption event records;
- Inform on call supervisor immediately.

Work Controllers / Telemetry Operators

- Create and maintain event records based on the information provided by Field Staff:
 - Interruptions to Supply (planned and unplanned)
 - Water Quality;
- Create and maintain event records for planned work;
- Close records at completion of events and apply appropriate DG3 status (required or not required);
- Monitor open incidents for records requiring action;
- Provide advice and guidance, if required, to Bronze users during Major Incidents.

DG3 Customer Services Coordinator

- Processes interruption information from Networks Water (Distribution and Leakage), Capital Asset Delivery and Developer Services, Metering & Billing;
- Checks, audits and queries records signed off by Field Managers;
- Compiles DG3 Interruptions to Supply Register based on data derived from IMS;
- Signs off IMS records and DG3 Interruptions to Supply Register for approval by Head of Water;
- Produces KPI reports for Management and AIR for Regulator.

Capital Asset Delivery

- Capital Asset Delivery is responsible for the rehabilitation of existing water mains and the installation of new water mains. Interruptions to supply arise as a result of connecting properties to the refurbished and new water mains.

Capital Asset Delivery Planned Works Coordinator

- Ensure that planned works affected > x properties / lasting > x time are entered on the system in advance;
- Ensure that planned works are updated if necessary (e.g. overruns, early starts);
- Close records at completion of events and apply appropriate DG3 status (required or not required);
- Ensure that planned works affecting < x properties / lasting < x time are entered on the system retrospectively and submitted for approval.

Networks - On-call Staff

- Assess extent of unplanned interruptions, update Duty Officer (if required) and organise remedial work
- Inform Networks Water Area Manager of actions taken and interruption details

Head of Water

- Approves the DG3 reporting elements of the Annual Information Return.

Regulation & Business Performance Section

- Submit Annual Information Return to NIAUR.

Emergency Planning Team

- Declare Major Incidents on the IMS system;
- Interrogate reports to provide status updates as incidents develop;
- Complete Upwards Reports based on data provided in IMS;
- Close Major Incidents on IMS system.

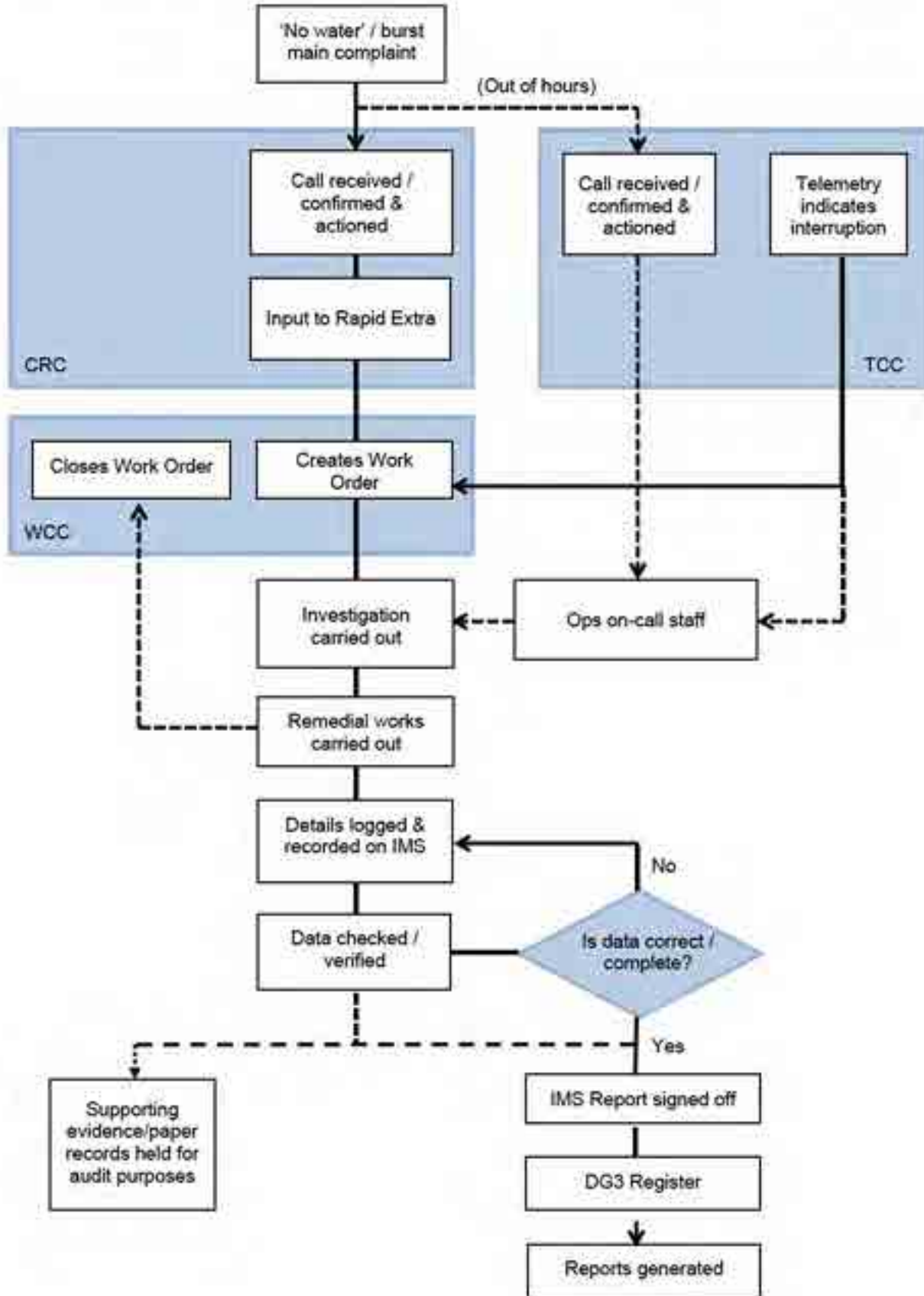
Bronze Team – MIP Only

- Create and maintain event records based on the information provided by Field Staff:
 - Interruptions to Supply (planned and unplanned)
 - Water Quality
 - Flooding;
- Close records at completion of events and apply appropriate DG3 status (required or not required);
- Monitor open incidents for records requiring action;
- Interrogate reports to provide status updates as incidents develop within their Bronze area.

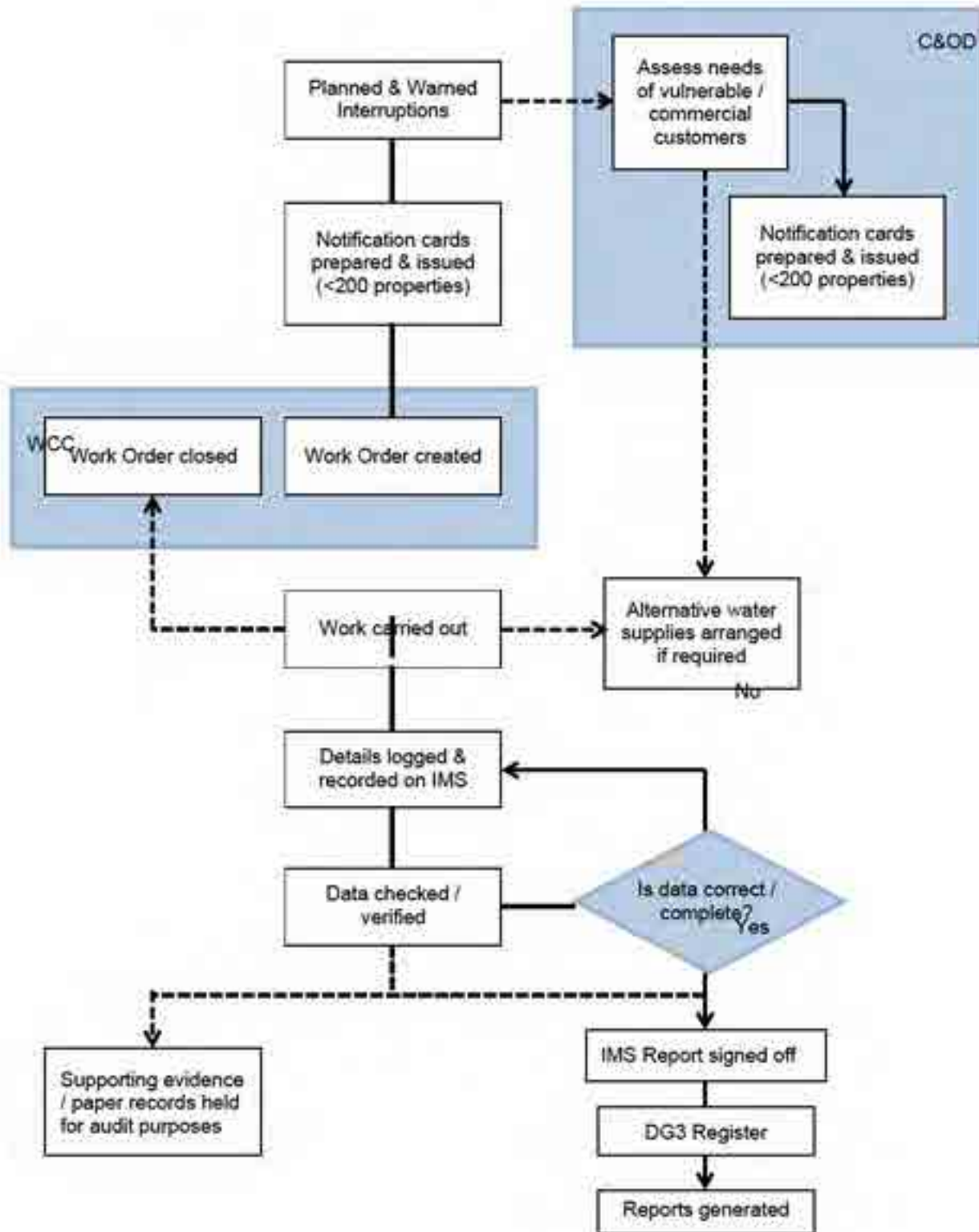
Silver Team

- Interrogate reports to provide status updates as incidents develop.

Appendix B – DG3 Process Flow Diagram – Unplanned or Unwarned Interruptions



Appendix B – DG3 Process Flow Diagram – Planned and Warned Interruptions



Appendix D – Pro forma - Interruption Record Sheet

Add New Interruption Record

Interrupt Number	Reported By	Works Request No	Works Order No
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Details Of Location

Functional Area	Networks Office	Total Properties
<input type="text"/>	<input type="text"/>	<input type="text"/>

Location (255 characters max)

Type and Cause Of Interruption

Type Of Interruption	Cause Of Interruption
<input type="text"/>	<input type="text"/>

Third Party

MainsType
 Trunk Distribution

Warning Details

Type Of Warning	Warning Issued	<input type="text"/>	<input type="text"/>
<input type="text"/>	Planned Start	<input type="text"/>	<input type="text"/>
	Planned End	<input type="text"/>	<input type="text"/>

Time Of Interruption

Interrupt Start	<input type="text"/>	<input type="text"/>
Supply Restored	<input type="text"/>	<input type="text"/>
All Properties Restored	<input type="text"/>	<input type="text"/>

Alternate Supplies

<input type="text"/>	
Length Of ITS (Hrs)	Overrun (Hrs)
<input type="text"/>	<input type="text"/>

No Of Properties Affected (Complete Duration Including Any Overrun)

> 0 Hrs	> 3 Hrs	> 6 Hrs	> 12 Hrs	> 24 Hrs
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

No Of Properties Affected (During Overrun Only)

> 0 Hrs	> 3 Hrs	> 6 Hrs	> 12 Hrs	> 24 Hrs
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Comments (255 characters max)

Appendix E – Pointer 2.1 Specification Extract (Page 12)**4.21 BUILDING_STATUS****Definition**

The current physical status of the building.

Constraints

Population of this field is mandatory.

Permitted PAO Status values are:

None, Under Construction, Built, Derelict and Demolished

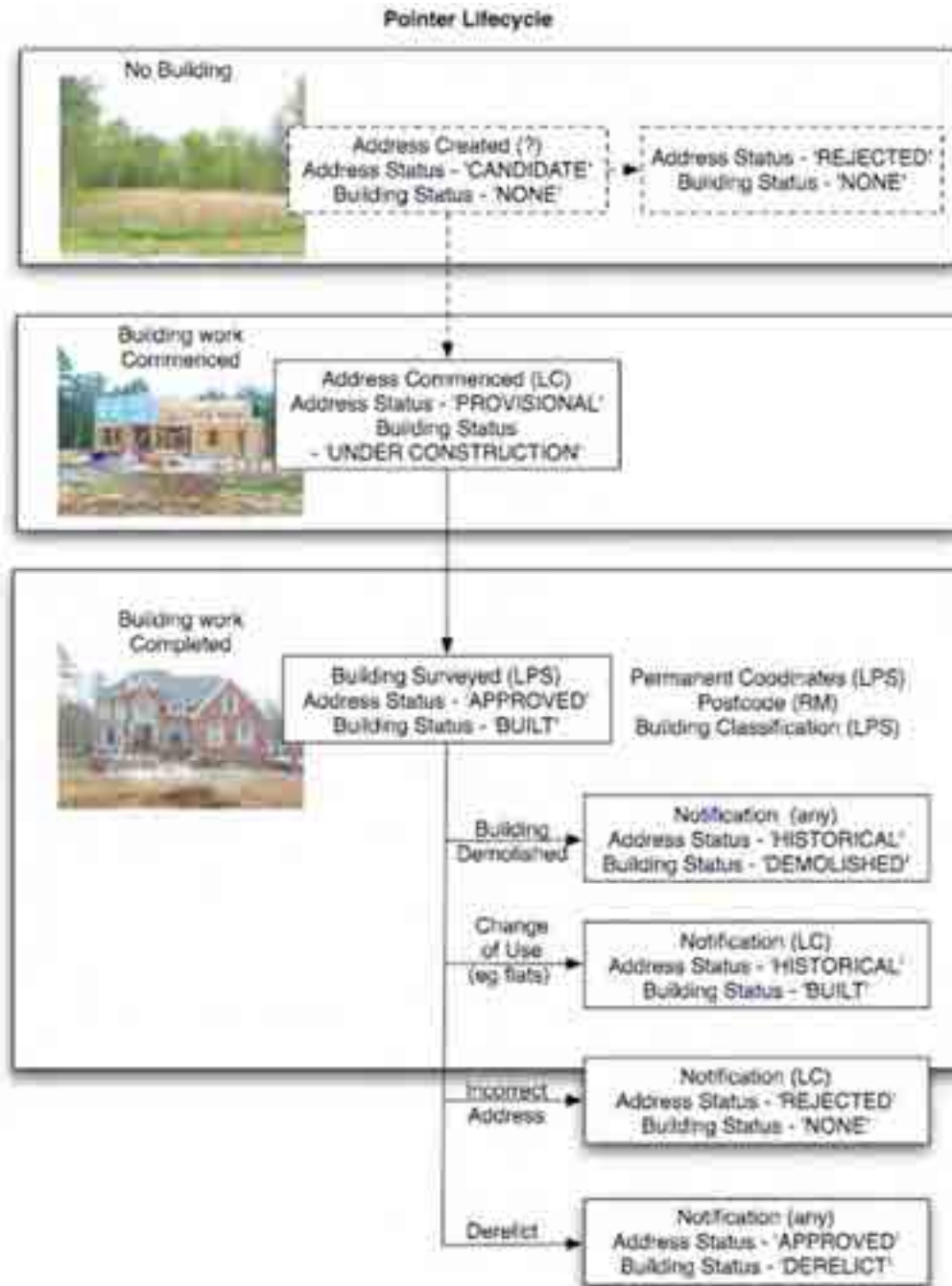
Details

This field reflects changes to the Building_Status.

The values in this field are system generated and when a new address sent in from a council is entered in the system, the Building_Status is set to 'None' and the Address_Status set to 'Candidate'. When the council sends notification that building has commenced, the Building_Status is set to 'Under Construction' and the Address_Status set to 'Provisional'. After LPS field surveyors have confirmed the exact co-ordinates for the building, the Temp_Coords field is updated and the Building_Status is set to 'Built' and the Address_Status set to 'Approved'. A notification from a council that a building is derelict or demolished results in the Building_Status being updated and the Address_Status set to 'Historical'.

Please note that depending on the purpose for which the data is being used, the user may need to filter out certain categories of Building_Status. For example, addresses for 'Demolished' buildings would not be required where a mail shot is planned.

Appendix E – Pointer 2.1 Specification Extract (Page 13)



Appendix E – Pointer 2.1 Specification Extract (Page 14)**4.22 ADDRESS_STATUS****Definition**

The current logical status of the address.

Constraints

Permitted ADDRESS_STATUS values are: (See diagram above)

- Candidate - before building starts. Planning permission has been granted but building has not commenced. Created by the Local Council before building has begun.
- Provisional – The Local Council has confirmed that the building is under construction.
- Approved – LPS add permanent co-ordinates and/or a building classification. A Postcode may also be added however this does not affect the ADDRESS_STATUS
- Historical - addresses that are no longer in use due to dereliction, demolition etc.
- Rejected – used to indicate the deletion of an incorrect address. Population of this field is mandatory, and is system generated.

Details

The values in this field are system generated and when a new address sent in from a council is entered in the system, the Building_Status is set to 'None' and the Address_Status set to 'Candidate'. When the council sends notification that building has commenced, the Building_Status is set to 'Under Construction' and the Address_Status set to 'Provisional'. After LPS field surveyors have confirmed the exact co-ordinates for the building, the Temp_Coords field is updated and the Building_Status is set to 'Built' and the Address_Status set to 'Approved'. A notification from a council that a building is derelict or demolished results in the Building_Status being updated and the Address_Status set to 'Historical'.

Please note that depending on the purpose for which the data is being used, the data should be filtered on the categories of Address_Status. For example, addresses set to 'Historical' would not be required where a mail shot is planned.

4.23 CLASSIFICATION

Definition

The current use of the building, derived from the LPS classification.

Constraints

Data in this field is system generated.

Permitted CLASSIFICATION values are shown below. These are derived from the detailed LPS list of valuation classifications.

Details

There are three main classification groups:

- NULL – Where the record has not yet been updated with an LPS classification.
- Non Domestic (formerly Commercial) – these records are prefixed with 'ND'
- Domestic (formerly Residential) – these records are prefixed with 'DO'. Where an individual is operating a business from a room within their home, LPS still classify this as a Residential property.

These are subdivided into a further classification as detailed above.

When the building use of an addressable object changes, the CLASSIFICATION field will be updated to reflect this change.

Appendix E – Pointer 2.1 Specification Extract (Page 15)

CODE	CLASSIFICATION DESCRIPTION
ND_agriculture	Agriculture (incl farms, market gardens)
ND_agriculture_other	Miscellaneous Agriculture
ND_comm_other	Commercial other
ND_culture	Cultural (incl museums, libraries)
ND_culture_other	Miscellaneous Culture
ND_education	Education (incl school, further ed)
ND_entertainment	Leisure and tourism(non-sporting - cinemas etc)
ND_ents_other	Miscellaneous Entertainment
ND_freight_other	Freight (canal, dock, railway undertaking)
ND_health	Health(incl hospital, care home, clinics)
ND_hospitality	Hospitality (incl hotels, b&b)
ND_indust_other	Miscellaneous Industry
ND_industry	Industry (incl factory, quarries)
ND_legal	Law and Order
ND_office	Commercial office - banks, post offices, offices
ND_religious	Religious establishment (incl places of worship)
ND_retail	Retail (shops, showrooms etc)
ND_sporting	Recreation (sports facilities)
ND_utilities	Public utilities
ND_utilities_other	Miscellaneous Utilities
DO_apart	Domestic - Apartments/flats
DO_detached	Domestic - detached
DO_semi	Domestic - Semi
DO_terrace	Domestic - Terrace
DO_other	Domestic other (incl Lock-up garages)

4.24 CREATION_DATE**Definition**

The date when an address is first entered into the system by the Local Council.

Constraints

This field will only be populated for records created after the Pointer application went live in 2005. The field is automatically populated when records are entered into the database. It does not necessarily relate to the date of building, but rather when the information was provided.

4.25 COMMENCEMENT_DATE**Definition**

This is the date when construction on the property has begun.

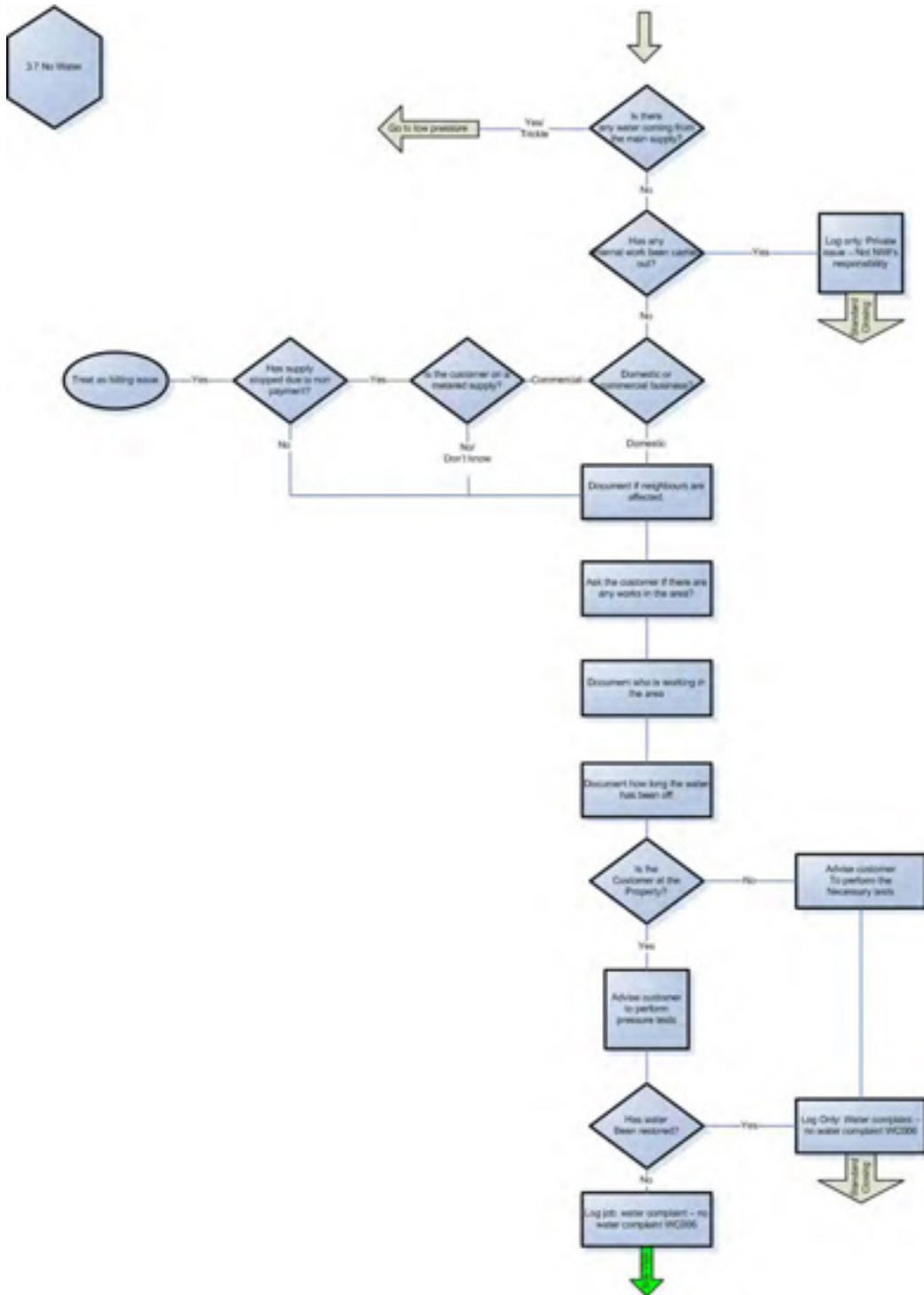
Constraints

This field will be populated for records created after the release of the new Pointer Product and when Local Council informs Pointer of the fact.

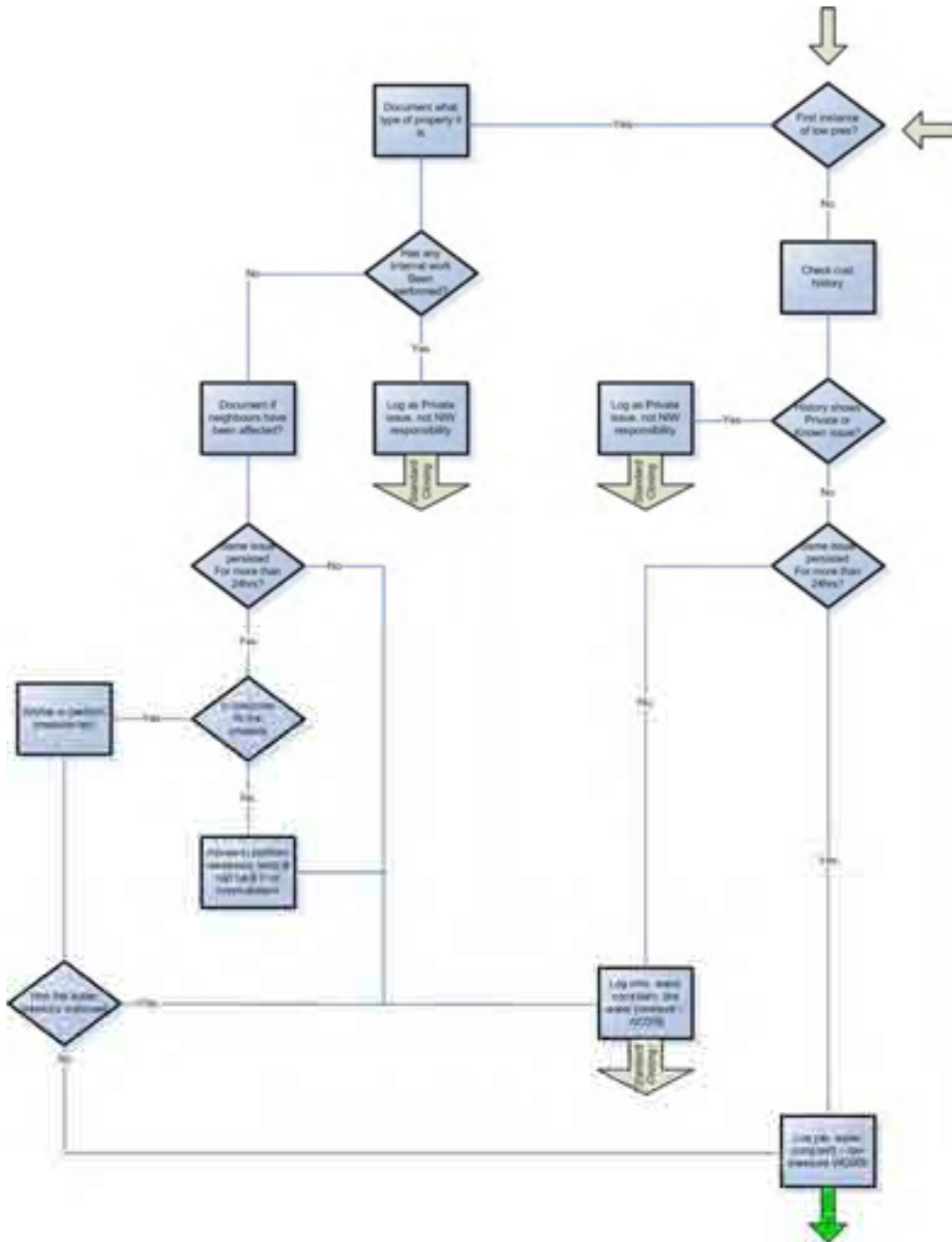
Details

This indicates when the BUILDING_STATUS changes from 'NONE' to 'UNDER CONSTRUCTION'

Appendix F – CRC Call Script for ‘No Water’ Complaints



Appendix F – CRC Call Script for ‘Low Pressure’ Complaints



Northern Ireland Water
Level of Service Methodology
DG5 Internal Flooding

Contents

- 1. Introduction**
- 2. DG5 Flooding Incidents – Internal**
- 3. DG5 Properties at Risk of Flooding – Internal**

Appendix A – NI WATER DG5 Internal Flooding Register Methodology

1. Introduction

Objective and Aim

NI Water must maintain verifiable records for DG5. The aim of the records is to provide an auditable method for identifying the specific, properties which are affected by flooding, or are at risk of experiencing flooding.

As part of these records companies must maintain a DG5 register which should form a database of all properties which are at risk of experiencing sewer flooding more than once in twenty years. It will enable the identification by address of individual properties which are below the reference level and should also contain information on (for example) complaints and the results of their investigation, problems which are attributable to customers apparatus and properties which experience sewer flooding but are covered by one of the allowable exclusions.

The register must clearly identify those properties below the reference level, distinguish them from those which have flooded but are not below the reference level and provide a verifiable reason for the exclusion (e.g. flooding was a result of a blockage).

The records should include:

- date of incident;
- properties affected identified by address;
- cause of flooding (including source and reason, where known);
- action taken;
- name of persons completing the records; and
- the 'Flooding' category for reporting under DG5.

Reporting Requirements

Two main outputs are required to be produced relating to internal flooding for AIR 22:

- DG5 Annual Flooding Summary – properties internally flooded as a result of overloaded sewers and other causes.
- DG5 Properties on the 'Flooding' register – properties at risk of flooding due to overloaded sewers, more frequently than once in twenty years and once or twice in ten years, requiring further investigation, problem status of properties on the register, annual changes to the register.

The information relating to the above is contained in Table 3 of AIR22.

2. DG5 Internal Flooding incidents – Methodology and Procedures

Internal

Data gathering and calculation is as described below.

Calculation Process - Lines 2 to 11,15a & 17

Data gathering and calculation is as described below in the Line- Specific Methodology Statements for Table 3: Lines 2 to 11,15a & 17.

Sources/Primary Process

Lines 2 – 11, 15a & 17 Properties and flooding incidents

A download of internal flooding records was obtained from the Ellipse system for the period April 2021 to March 2022 on a month by month basis.

Investigations were carried out for each reported incident and those properties found not to be flooded after investigation, using information from the Sewer Maintenance Contractor, Flood Incident Report (FIR) Forms, Field Manager reports, modelling provided by Drainage Area Plan consultant and contacting the Customers directly, are removed. The remaining properties were recorded as Flooding Incidents.

Assumption

For the purpose of AIR22, NI Water has assumed that a single incident includes recorded complaints from the same property on the same day or within three days.

‘Three days’ was chosen on the basis that a noticeable volume of repeat calls tends to be received within three days of an incident occurring. There is then a much longer passing of time before calls are again received from the same locality, suggesting that the original incident has passed and that the calls relate to a different incident.

An incident of internal flooding is assumed to be where a property has been flooded internally. If two adjacent properties are flooded at the same time they are classed as two properties and two incidents.

Where a single property floods internally on two separate occasions then this is recorded as one property and two incidents.

Sources/Secondary Process

1. Wastewater Business Unit (WWBU) carries out further investigations to determine the cause of every internal flooding incident.
2. WWBU assess the information held on customer report, Flood Incident Report (FIR), along with photographic evidence and closure details provided by the contractor.
3. WWBU determine if the cause of the flooding incident was hydraulic incapacity or flooding other cause, i.e. Blocked Sewer, Equipment Failure or Collapsed Sewer. This is done by a number of methods including site visits, concentric circle surveys, Customer Field Manager reports, modelling provided by Drainage Area Plan consultant, customer interviews, field manager interviews and review of existing incident information.
4. If hydraulic incapacity is confirmed a Met Office Weather report is used to determine if the incident is as a result of severe weather (Line 4).
5. These properties were then recorded on a spread sheet under the appropriate categories for lines 2, 3, 4, 4a, 5, 6, 8, 9, 10 and 11 using the information gathered from, the Sewer Maintenance Contractor, Flooding Report Forms, Field Manager reports and contacting the Customers directly. A folder of evidence was created for all confirmed cases and this was brought to the monthly DG5 panel for approval and addition to the appropriate section of the register. At the end of the reporting year this was the data used for AIR returns.
6. The figure for line 7 was obtained by having a report run in the DG5 Oracle Database which holds the information as a DG5 layer in the GIS system.
7. The required information to populate Line 17 is extracted directly from the monthly spread sheet completed by the contractor.

3. Internal Flooding Register

Internal Flooding Process

All internal flooding incidents are subjected to a robust investigation (See Appendix A – NI Water DG5 Internal Flooding Register Methodology). An expert panel (the DG5 Panel) examines the evidence for each incident and governs the addition of properties to, and the

removal of properties from, the register. Those records that do not meet the DG5 Criteria are recorded in the 'excluded' section of the Database. All new incidents of external flooding are being investigated in a similar manner as the Internal flooding incidents.

The register is held as an Oracle database within the Corporate Asset Register – specifically as a GIS layer on CARTomap.

Methodology applied to the completion of Table 3

Lines 12-15: the numbers have been extracted from the DG5 Oracle database

Line 16: the number has been extracted from the DG5 Oracle database

Lines 22-25 and 30-33: A folder is created (within the Asset Management section of the company network) for each addition, removal or transfer of a property. The lines were populated from an analysis of these folders; the analysis was cross-checked against the minutes of the monthly DG5 Panel meetings.

Lines 26 and 34: The 'Enhanced Service Levels' element of the capex cost was obtained from the CAPTRAX system for each relevant project and aggregated. This total cost was then divided by the number of properties removed.

Mitigation

Properties protected from the risk of flooding by mitigation measures, such as non-return valves have been added to the 1 in 20 Register (unless evidence existed to allow addition to the 1 in 10 or 2 in 10 register).

All such properties are currently the subject of four Engineering Procurement appraisal projects – which seek to identify permanent solutions at the locations.

Additions to the Register and Transfers within the Register

A folder of evidence was created for all confirmed DG5 flooding properties and this was brought to the monthly DG5 panel meetings for their approval and addition to the appropriate section of the register.

Similarly transfers between the register categories (**2 in 10, 1 in 10 and 1 in 20**) are brought to the attention of the DG5 Panel at the monthly meetings for approval.

Prioritisation of capital schemes

No formal prioritisation process is applied.

All capital works projects are submitted to the NI Water Capital Investment Panel for approval before implementation.

Properties which have not flooded in the last 10 years

Properties remain on the Register which have not flooded in the past 10 years (excluding severe weather).

**Appendix A NI Water DG5 Internal Flooding
Register - Methodology**



DG5 Internal Flooding Register - Methodology

Final v1.1

08 June 2015

1 Main Contributors	2 Aspect/Section	3 Notes
	Draft	
	Final	

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1.1	08 Jun 15	Minor revisions and new FIR form inserted	SB	DW	MMcl

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10 Introduction

10.1 Background

This document provides guidance on how the successful management of the DG5 Internal Flooding Register, within Northern Ireland (NI) Water, should be carried out. Where possible, this document complies with Ofwat and Northern Ireland Authority for Utility Regulation (NIAUR) Guidance.

10.2 Scope and Objectives

This document is owned by NI Water and describes the end-to-end business process by which a property that has experienced internal flooding is added to, and removed from the DG5 Internal Flooding Register. It will support NI Water in the development and implementation of its DG5 reporting processes and long-term management of the Register.

The purpose of this methodology is to ensure that a fully transparent, auditable process is in place for the management and maintenance of the DG5 Internal Flooding Register for NI Water in order to report to NIAUR.

11 Definitions

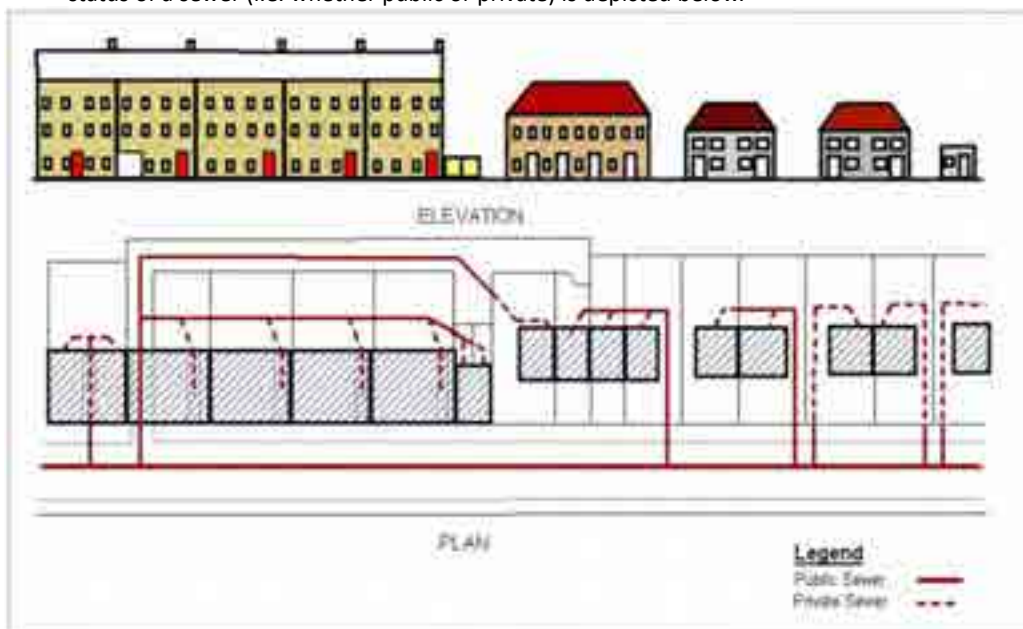
The following definitions are to be applied when recording and reporting properties and incidents held on NI Water's DG5 Internal Flooding Register.

Northern Ireland Water is only responsible for internal flooding caused by failure of the public sewerage system. This excludes private sewers, highway drainage, gullies, land drainage, and watercourses.

11.1 Legal Definitions

11.1.1 Public and Private

Northern Ireland Water is responsible for internal flooding caused by failure of the public sewerage system. The status of a sewer (i.e. whether public or private) is depicted below.



Drains; are defined as a pipe which carries waste water (sinks, baths, toilets etc.,) and trade wastes from one property to a sewer. Northern Ireland Water has responsibility for a drain up until the point of the property boundary. The length of drain within the boundary of the property lies with the property/landowner.

Public sewers; are defined as sewers serving more than a single property or, if serving a single property, sewers outside the property boundary and has been adopted, only then does responsibility lie with Northern Ireland Water.

11.1.2 Adopted and Unadopted Sewers

An adopted sewer is a sewer that is vested by NI Water and maintained at its expense. An unadopted sewer is a sewer that is either privately owned or has not yet been adopted by NI Water.

11.1.3 Third Party Responsibility

A third party incident is one where Northern Ireland Water could take action to recover costs from those responsible. Incidents due to third party attributed to hydraulic overload of the public sewerage system are significant unconsented discharges e.g. industry, leisure, domestic (swimming pool).

Where NI Water has gathered evidence that flooding of a property has occurred due to the actions of a third party, the company will attempt to recover the costs of implementing the temporary or permanent solution.

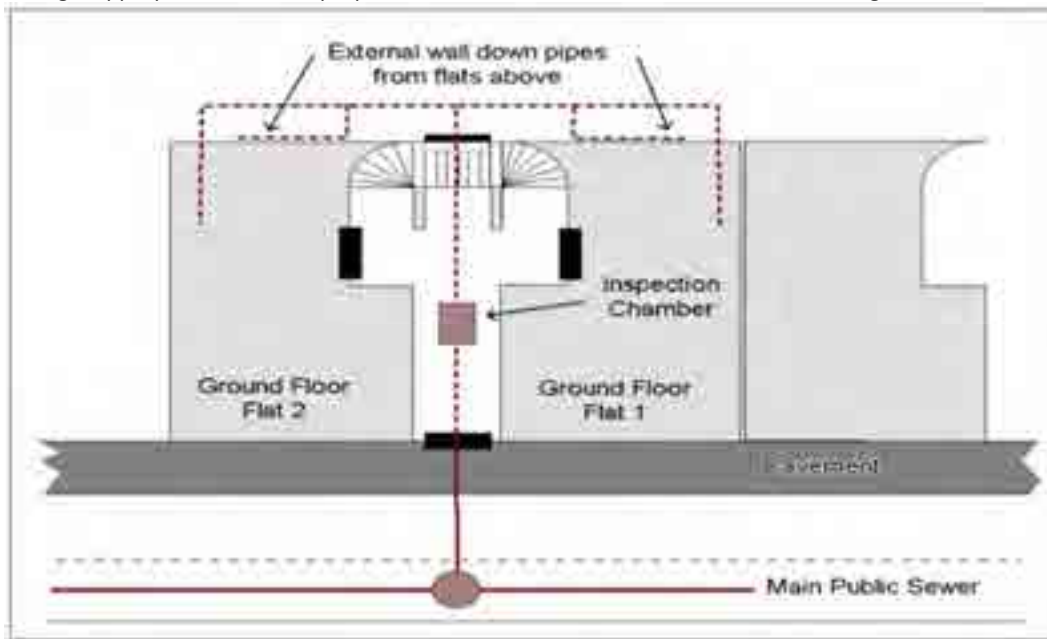
11.1.4 Basement Flooding

Customers do not have a right to connect wastewater discharges from a basement directly into the public sewerage. If a customer wishes to connect, then Northern Ireland Water will carry out investigations to confirm that by connecting the basement discharge to the public system it does not put the property at risk, because of existing conditions within the sewerage system. Written confirmation of the investigations will be given to the customer.

If a customer connects without obtaining the necessary planning permissions, then they do so at their own risk. Northern Ireland Water does not accept any responsibility for any resultant flooding incident. If basement flooding occurs due to hydraulic overload (and the customer has the right to connect) then this property will be identified as impacted by internal flooding and will be added to the appropriate register.

11.1.5 Apartment / High Rise Responsibilities

Incidents, which occur on the private drain, i.e. within the apartment block, are the responsibility of the residents. Should a flooding incident occur on the ground floor then those properties affected can be classed as internal flooding if appropriate. All other properties would be classed as external access flooding.



11.1.6 Sensitive Areas

Sensitive areas include, schools, hospitals, children play areas, nursing homes and properties of vulnerable customers. A property's sensitivity may have an impact on the prioritisation of when the solution to the internal flooding is implemented.

11.1.7 Property Classification

For reporting purposes, the following statements relate to property classification:

- Buildings that are normally occupied and used for residential, commercial, public, business or industrial purposes are included. This also includes garages that form an integral part of the property and are classed as part of the building even if the main purpose is storage.
- Buildings whose prime purpose is storage or installation of domestic appliances are not classed as occupied.
- Detached or 'linked-detached' garages i.e. those attached to a property but separated from it by an external passageway are excluded.

- A cellar forms an integral part of a building that is at least partly below ground level. Where a cellar is in regular use as part of normal living accommodation, it is termed a basement and any flooding should be reported as a normal flooding incident. Where an uninhabited cellar, i.e. one that is not used for habitation, is affected by water entering it directly (as opposed to via another part of the building) this has to be separately enumerated.

In order to ensure that the correct assessments on properties are made the following diagrams and pictures show the definitions for internal flooding against various property types;



- **Property with integral garage**
- Therefore either area flooded will be classed as internal flooding
- Flow entering the solum or living area would be classed as internal flooding and only that property recorded.



Villa – Ground Floor and 1st floor properties
 Flooding to the solum of the ground floor flat will mean that only that property will be identified as suffering from internal flooding.
 If the 1st floor flat is accessed via a door which enters immediately into the property and is also affected by flood water, then this will also constitute internal flooding and both will be identified as an internal flooding incident



- **Basement Property**
- A cellar that is in regular use as part of normal living accommodation is termed a basement and any flooding should be reported as a normal flooding incident.
-
-



Apartment Block
 Internal Flooding would normally be contained to the ground floor flats. Individual properties affected by internal flooding will be identified and recorded. Flooding of the internal access will not be classed as internal property flooding for the remaining tenants. These will be classed as external flooding (access).



-
- **Semi-detached** properties with **detached** garage.
- Flooding of the garage would not be classed as internal flooding.

-
- **Detached** or **'linked-detached'** garages i.e. those attached to a property but separated from it by an external passageway.
- Flooding of the garage would not be classed as internal flooding.

11.1.8 Temporary and Permanent Solution

A temporary solution is defined as one which does not permanently remove the risk of flooding but reduces the risk of internal flooding happening.

A permanent solution is defined as one that permanently addresses the cause of the hydraulic overload.

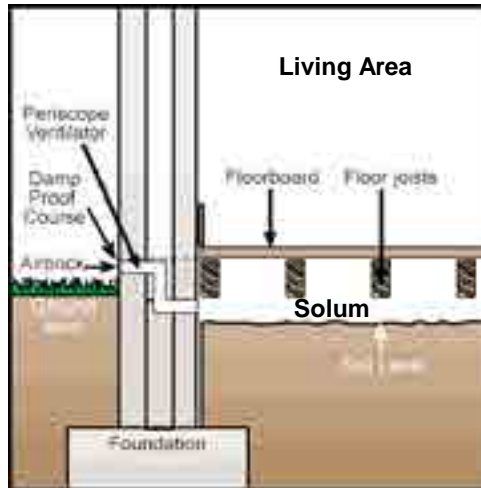
Permanent works would enable a property to be removed from the DGS Internal Flooding Register.

Examples of temporary and permanent solutions include;

Temporary Solutions	Permanent Solution
Fitting of anti-flood devices e.g. Non-Return Valve (NRV)	Land re-profiling
Air brick protection	Disconnect basement
Raising of Thresholds	Divert private drainage or public sewer
Bolt down inspection chambers	Isolate with private pumping station
Seal / bolt down manholes	Fill in hollow floors and cellars
Stop Logs	Flow attenuation
Issue of sandbags	Outfall protection e.g. flap valve
uPVC doors	Sewer Upsizing
Flood guards	'Right to purchase'

11.2 Internal Flooding Definition

A property can be deemed affected by an internal flooding incident when foul, combined or surface water escapes from the public sewerage system into a property and enters a building or passes below a suspended floor. The diagram below shows a cross section through a suspended floor.



For DG5 reporting purposes, internal flooding refers to buildings which are normally occupied and used for residential, public, commercial, business or industrial purposes. Buildings whose prime purpose is storage or installation of domestic appliances are excluded. Refer to Section 2.1.7 for Property Classification.

11.2.1 Restricted Toilet Use

Restricted Toilet Use (RTU) occurs where there is no internal flooding but where the customer is unable to flush their toilet without a risk of causing internal flooding of the property.

11.3 Flooding Cause Definition

11.3.1 Introduction

Flooding generally occurs through a combination of events and responsibility can lie with a number of different parties. Possible reasons for flooding can include:

- Blocked or overloaded drainage ditches, drains and sewers overflow across roads, gardens and into property.
- Hydraulic incapacity can on occasion cause sewers to backflow into a property.
- Rain can be so heavy that run-off flows overland down hills and slopes.
- Rain soaks into the ground causing groundwater levels to rise and flood.
- Broken or burst water mains (normally leading to basement flooding rather than property flooding above ground level).

Customers do not always distinguish between the various causes of flooding. In order to deal with an incident efficiently, it is imperative that call centre staff ascertain the cause and mechanism of the flooding. This ensures that appropriate action can be taken and the risks to the company minimised.

The cause of flooding will be determined by call centre staff asking the customer a set of pre-set questions from a call centre script.

11.3.2 Flooding due to Hydraulic Incapacity

A sewer can be classed as hydraulically incapable when the flow from a storm is unable to pass through it due to a permanent problem. Permanent problems are due to limitations in the physical characteristics of the network, generally the size of the sewer relative to flow and gradient. Properties affected by internal flooding due to hydraulic incapacity shall be placed within relevant flooding severity category unless there is evidence to prove that the flooding was due to 'Other Causes' or severe weather. Temporary problems are excluded and comprise of: Blockages, Collapses, Equipment Failure.

11.3.3 Other Causes Flooding

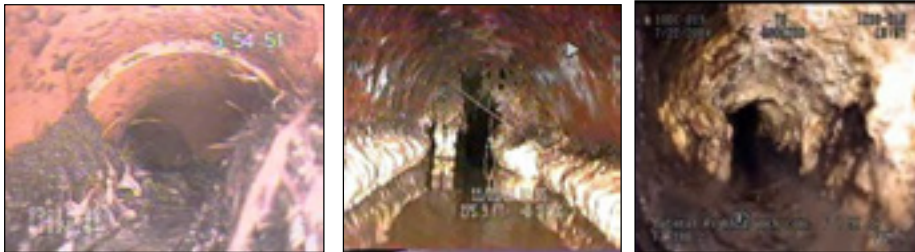
'Other Causes' are related to localised deficiencies and transient characteristics of the network. The main causes are:

- blockages
- collapses
- equipment or operational failure

These incidents are reported separately to NIAUR, but stored within the excluded section of DG5 Internal Flooding Register.

11.3.4 Blockages

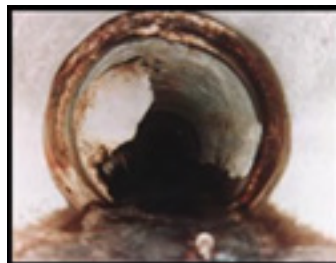
A sewer blockage can be attributed to a number of factors, including siltation, fat, roots, and debris, as shown below.



For regulatory reporting, silt, fat, roots debris are all classed as a blockage. However, it is important that the actual cause of the blockage is recorded within the incident record. The response to each of these might require a different solution. For example, a persistent fat problem may require trade effluent control or persistent siltation problems may need to be added to the de-siltation programme for that area.

11.3.5 Collapsed Sewer

In the context of the indicator a collapsed sewer, is a sewer that creates a restriction or induces a blockage, e.g. fracture, deformation, intruding junction. A rising main burst is also classified as a collapse. An example of a collapse is shown below.



11.3.6 Equipment Failure

Equipment and operational failures can be attributed to power outages, inadequate maintenance regimes, a change to operating regime other than that designed for, mechanical or electrical failure.

Where a pumping station has failed then distinction must be made between network and terminal stations, as well as the criticality or size band of the station indicated.

Where a pumping station can be seen to be overrun by the incoming flows and can be shown to be operating within its design parameters then this may be an indication of severe weather or inflow from another source e.g. watercourse, tidal, ground water infiltration etc.

If the pumping station can be seen to be beaten by incoming flows in non-severe weather conditions and can be shown to be operating within its design parameters consideration should also be given to the possibility that the capacity of the pumping station has been exceeded, i.e. the sewer network now suffers hydraulic incapacity. Properties flooded internally as a result of such situations shall be classed as DG5 reportable.

Flooding caused by failure of an anti-flood device on a private connection, e.g. NRV, should be ascribed back to the underlying cause, hydraulic incapacity, and recorded as an internal flooding incident.

11.3.7 Third Party Causes

A third party incident is one where Northern Ireland Water could take action to recover costs from those responsible. These can include the discharge of material into the public system causing a blockage, or equipment failure, vandalism, network impacted by a third party e.g. a builder or other statutory utility.

It is important that causes beyond the reasonable control of the company are identified and described especially where a claim might be pursued against a third party. If permanent improvement or temporary operational works for Northern Ireland Water causes internal flooding then this must also be recorded and the reasons given as to why it happened.

The Flood Investment Planning Group is made up of Northern Ireland Water, Rivers Agency, Roads Service and Local Councils could provide a useful forum in which to establish responsibility for disputed third party flooding.

11.3.8 Increase in Demand

Increase in demand is defined by Northern Ireland Water as predicted growth, which exceeds the available headroom within the network on the trigger event.

Verified hydraulic models shall be used to identify properties at risk of flooding as a direct result of development/growth based on the Local Area Plan. This analysis is generally an output from a Drainage Area Study (DAS). No other analysis on demand is carried out.

11.4 Flooding Class Definition

- 1 in 10; is applied to reported flooding location due to hydraulic incapacity during a rainfall event with a return period between 5 and 10 years.
- 2 in 10; is applied to reported flooding location due to hydraulic incapacity during a rainfall event with a return period of 2 in 10 years i.e. <5 years, or has actually flooded twice within a 10 year period.
- 1 in 20; is applied to reported flooding location due to hydraulic incapacity during a rainfall event with a return period between 10 and 20 years.
- Severe Weather; locations refer to a reported flooding incident with a return period greater than 20 years.
- Flooding Other Causes; is applied to reported flooding locations where the cause of flooding has been found not to be hydraulic incapacity i.e. blockages, collapses, third party or equipment failure causes.
- Removed due to Company Action; is applied to reported flooding locations where NI Water has constructed a permanent solution to remove the risk of flooding
- Removed due to Better Information; is applied to reported flooding locations where information has been obtained which proves that the cause of flooding was not due to incapacity in the sewer system.

Internal Flooding Register – Governance

11.5 General

The NI Water DG5 Internal Flooding Register contains information on internal flooding incidents caused by the hydraulic incapacity of sewers, and properties at risk of experiencing internal flooding. NI Water's Asset Management section (AMS) is the owner of the DG5 Internal Flooding Register.

The information recorded on properties affected by internal flooding or those at risk of experiencing flooding constitutes a legal register for reporting to the NIAUR. The information contained within must be verifiable and available for audit.

NIAUR requires NI Water to produce an annual DG5 Report summarising the required DG5 information. NI Water is also required to maintain a DG5 Internal Flooding Register which holds information on properties at risk of flooding, once in twenty years and once or twice in ten years due to the hydraulic incapacity of sewers. NI Water must also report on each flooding category status of each property on the register and all annual changes to the register.

The DG5 Internal Flooding Register will contain the information required to prepare Table 3, of the Annual Information Returns (AIR). This information can be accessed via the reporting function on the DG5 incident and property database.

The DG5 Internal Flooding Register has been developed from records that date back to 1990 and the increasingly robust investigation of 'live' incidents from 2008 onwards.

11.6 Governance

Maintenance of the DG5 Internal Flooding Register and AIR reporting is the responsibility of AMS and the Network Sewerage Business Unit (NSBU). Clear definition of responsibility for actions, analysis and records within the DG5 Internal Flooding Register has been entrusted to the appropriate sections within NI Water. The stakeholders and their responsibilities have been defined within this methodology.

This end-to-end DG5 business process outlined in this document, and attached in Appendix A, will ensure that responsibilities and performance measures are in place to ensure the quality of information captured and maintained is consistent at all levels through the process.

The DG5 Panel has responsibility for approval of additions to and removals from the register, while also ensuring that the reporting processes and outputs remain robust enough to meet the reporting requirements of NIAUR. Responsibilities for the internal DG5 flooding reporting process will be reviewed on an annual basis and updated accordingly.

12 Internal Flooding Register – Business Process

12.1 Notification of Internal Flooding Incident to Call Centre

All flooding incidents are recorded through a series of different source collection methods in NI Water's asset inventory management system. This happens by customers reporting flooding incidents via our Customer Call Centre. The call handlers will establish if the incident is the responsibility of NI Water and then confirm with the customer that the incident was indeed internal flooding and record it on NI Water's call management system. A Caller Log is created with the incident information then passing to NI Water's Work Control Centre staff who distributes the relevant work order to the appropriate contractor for action. This step takes no longer than one week to complete.

12.2 Initial Investigation by Network Sewerage Business Unit

The NSBU will initiate the first phase of investigations once an internal flooding incident has been reported. Evidence gathered at this initial stage is passed to Asset Performance (AP) for further investigation/verification. The process that NSBU follow is outlined below;

- Reported Internal Flooding Incidents are downloaded from the company's asset inventory management systems and interrogated, with duplicates removed.
- Information held on Customer Reports and Flooding Incident Reports are assessed along with photographic evidence and previous flooding records to ascertain if the reported incident is internal flooding.
- NSBU to carry out further investigations to determine if the cause of flooding incident was hydraulic incapacity or due to other causes, i.e. Blocked Sewer, Equipment Failure or Collapsed Sewer. This is done by a number of methods including site visits, concentric circle surveys, customer interviews and review of existing incident information. If flooding is due to other causes, the property is placed in the excluded section of the DG5 Internal Flooding Register. (Investigation methods are outlined in Section 4.2)
- If hydraulic incapacity is confirmed NSBU use a weather report to determine if the incident is as a result of severe weather. If severe weather is confirmed the property is excluded. The same weather report, along with historic records (if applicable), is used to categorise non-severe weather incidents into one of three storm return categories – 1:20, 1:10 and 2:10. In addition properties that suffer from RTU, due to hydraulic incapacity, are also recorded. (Storm Return Categories and RTU explained in Section 4.2.10 and 4.2.11).
- Once NSBU have completed the above stages a folder of evidence is compiled and forwarded to AP for further investigation/verification.

12.3 Identification of additional properties by Engineering and Procurement

In addition to the weekly flooding incident download by NSBU, Asset Delivery (AD) will forward a monthly report detailing any newly identified DG5 properties to NSBU for investigation. These potential DG5 properties will be identified from on-going Capital Works Programme (CWP) Schemes. This step is completed on a monthly basis.

12.4 Further Investigation by Asset Performance

AP receives all fully investigated and categorised DG5 Properties from NSBU on a monthly basis. AP carryout further detailed investigations to verify the investigations undertaken by NSBU. Detailed investigations can include modelling, DAS, customer questionnaires, Geographical Information System (GIS) assessments and topographical surveys.

AP carryout the following investigative process;

- Assess the history of flooding incidents at each property to confirm the NSBU flooding report. Historic assessments may include investigations of reported external incidents, extreme weather event records and incidents confirmed at adjacent properties.
- Interview the Operational Area Field Manager (FM) to confirm that the property has a history of internal flooding. AP also seeks advice from the relevant FM as to the cause of the internal flooding to aid in further investigations.
- Use GIS to assess the position of the sewer network.
- Carryout site topographical surveys of the sewer network and surrounding area.
- Interview the property owner with pre-set questions in DG5 Internal Flooding Questionnaire.

- Assess existing network model, i.e. DAS, for predicted flooding to verify if property floods under specific flooding scenarios.

Once AP has completed the above stages a report will be compiled summarising the evidence gathered including recommendations. If hydraulic incapacity is confirmed the evidence will be presented to the DG5 Panel to propose adding the property to the DG5 Register.

Note; if the cause is still unknown after the course of investigations and the internal flooding is major and frequent enough to warrant a thorough investigation, then a Project Consideration Form (PCF) will be raised to propose a feasibility study.

12.5 Approval of Additions by DG5 Panel

The DG5 Panel review the evidence brought before them and decide whether to add the property to the DG5 Internal Flooding Register. If the Panel members need more evidence, the property will be returned to AP for further investigation, and then re-submitted to the Panel for consideration. This step is completed once every month.

12.6 Update of Asset Information Records

The DG5 Panel Secretary will digitise all flooding incidents approved by the DG5 Panel onto the DG5 Layer of the company's GIS System, and update the DG5 incident and property database with the associated incident.

12.7 Initiation CWP Project by Asset Performance

The DG5 Panel forward all new additions to the DG5 Internal Flooding Register to AP to initiate the CWP process. Asset Performance cross-check existing CWP Schemes to ensure the property is not included in an on-going project. A PCF will be created to begin the CWP process.

Once the relevant section of the scheme is complete a DG5 Beneficial Use Form is sent from EP to AP, where a check against drainage area studies carried out to establish if the reported flooding has been resolved. If a resolution to the flooding is confirmed AP prepare supporting evidence to present at DG5 Panel for removal from the DG5 Internal Flooding Register

12.8 Approval of Removal by DG5 Panel

If a property is to be removed from the DG5 Internal Flooding Register due to 'Company Action', a Beneficial Use Form must be presented as evidence. If a property is to be removed due to 'Better Information' a folder of evidence must be presented outlining the reasons. This is completed once every month.

This clear and strictly controlled process will govern the movement of each property as it is investigated. Each stage described above can be seen in Appendix A.

13 Internal Flooding Register – Administration, Additions and Format

This section provides guidance on how properties at risk of flooding due to the hydraulic incapacity of sewers are categorised within the DG5 Internal Flooding Register.

13.1 Rules Governing Internal Flooding Register

The following rules govern the DG5 Internal Flooding Register and describe how a property is added and removed from the register. Property additions and transfers must follow the appropriate procedure as described below. (Property removals are discussed in section 7).

13.1.1 Additions to Internal Flooding Register

This procedure must be followed for all new flooding incidents received through the weekly NSBU download (see Section 3.2). These incidents will usually have occurred recently, although it is possible new information may cause a historic event to be reclassified.

- All properties that have been affected by internal flooding, caused by hydraulic incapacity, must be reported in the DG5 Internal Flooding Register. Properties flooded due to Other Causes (Blockage, Collapse or Equipment Failure) will be placed in the 'excluded' section of the same register and reported in Table 3 of the AIR.
- First time flooding where hydraulic incapacity is confirmed shall be supported by weather reports and any supporting DAS data.
- A property affected by internal flooding as a result of hydraulic incapacity is categorised by the severity of the rainfall event and how often flooding has been recorded.
- All properties affected by flooding due to hydraulic incapacity will be investigated to ensure that each property or area flooded is accounted for within the appropriate category.
- For repeat incidents, supporting meteorological data will be required only if there is significant difference in the number of properties affected within the same location or if an event is deemed to be severe. An increase in frequency will affect the prioritisation and in some instances the register category of some or all properties affected.
- If the event was due to 'Severe Weather' the properties are placed in the 'excluded' section of the DG5 Internal Flooding Register.
- Where a property has flooded as a result of failure of a mitigation device, it should be reported as an equipment failure.
- Only if a basement has a 'right to connect' to the public sewerage system and has flooded can it be identified as being affected by internal flooding and categorised appropriately.
- If the flooding is shown to be outside Northern Ireland Water's responsibility (Third Party), it is excluded from the DG5 Internal Flooding Register and flagged appropriately within the exclusion register.
- Properties added due to better information are placed in the DG5 Internal Flooding Register when flooding has been identified for the first time, usually as a result of network analysis, greater local knowledge or following customer contact.

13.1.2 Sources of Information

Historic information can be used with discretion in order to support or understand the full extent of a flooding incident.

If properties are found to have historically flooded when carrying out a study within a catchment (e.g. DAS) then details should be captured and the appropriate information passed to NSBU. Supporting information would include:

- The use of verified hydraulic models.
- Site and level Information.
- Customer interviews.
- Shared information between other relevant bodies e.g. Local Authorities.

Information can also include the following:

- Flooding at a property being caused by blockages/ equipment failure rather than hydraulic incapacity. Acceptable supporting data would be date stamped CCTV, or static photographic evidence.
- Severe weather classification – data provided by weather reports
- Customer Interviews
- Flooding shown to be caused by a Third Party.

13.1.3 Investigations where Hydraulic Overload is suspected

After a flooding incident has occurred it is recorded and passed to NSBU who will carry out further investigative work to ensure that the cause, mechanism and impact of flooding is identified and analysed as soon after the event as is practicable.

This process will ensure that:

- The most appropriate action is taken.
- Where necessary a cost-effective solution proposed.
- Flooding regulatory registers are maintained with accurate and up to date information.

13.1.4 Incident Investigations

Initial site investigations will be carried out by the Contractor, co-ordinated by Networks Sewerage Section. The number of properties affected by the incident and the extent of the other external areas will be recorded regardless of the cause.

If the cause cannot be attributed to 'other causes' i.e. through CCTV, visual inspections, jetting, customer liaison or third party, then a request for further investigation will be submitted via the work order. This request will be submitted to the Contractor, by Networks Sewerage for action.

13.1.5 Network Review

This is primarily a desktop exercise to review all available information on the site and relevant assets. This will include information on the catchment through existing asset management plans, DAS, hydraulic modelling, feasibility studies, MET office data analysis, and previous cluster data if a repeat incident.

If there are known operational hot spot areas then further work on capacity checks, assessment of hydraulic model predictions and historic information will be needed. A network review will only be carried out in detail where the mechanism of flooding is unclear or where the rainfall data and impact is inconsistent with other evidence.

13.1.6 Sites Investigations

These are carried out as soon as is practicable after the incident happening. This is to ensure that the necessary evidence is gathered as close to the event as is practicable.

Site investigations may also show that there is evidence to prove that unreported flooding has occurred. Investigations are carried out using the concentric circle methodology, where investigations will start at the property affected by internal flooding and work outwards to adjacent properties in all directions. This will ensure that all affected properties are captured and recorded, allowing the full scale of the internal flooding to be realised. This approach will be repeated for every property identified for each incident.

13.1.7 Customer Questionnaires

Customers can provide useful information on the events leading up to, during and after an incident has occurred. Where appropriate a customer questionnaire should be completed.

13.1.8 Weather Reports

Weather reports will only be requested if:

- It is a first time flooding incident.
- There is low confidence in understanding the problem.
- It is a repeat incident and there is a significant disparity between the numbers of properties recorded by recurring incidents.
- Severe weather is suspected

Use of weather reports to categorise properties

- Properties will be categorised as 'excluded due to severe rainfall' if the weather report identifies the storm during which the internal flooding occurred as having a return period of greater than 1 in 20 years.
- Properties will be placed in the 1 in 20 register if the weather report identifies the storm during which the internal flooding occurred as having a return period of 1 in 20 years or less and greater than 1 in 10
- Properties will be placed in the 1 in 10 register if the weather report identifies the storm during which the internal flooding occurred as having a return period of 1 in 10 years or less and greater than 1 in 5

- Properties will be placed in the 2 in 10 register if the weather report identifies the storm during which the internal flooding occurred as having a return period of 1 in 5 years or less.

13.1.9 New Hydraulic Model Builds

If a hydraulic model does not exist and the extent of the problem cannot be determined from site investigations then a model may need to be commissioned.

Note: Prior to any major capital investment a verified hydraulic model should be used for solution development.

13.1.10 Localised Enhancements to Existing Models

Where a hydraulic model exists, then it may be necessary to carry out some localised enhancements. This process may include manhole survey, and / or dis-aggregation of the network prior to any solution development. The validity of the enhancements to the model must be checked in that area against the original verified model.

13.1.11 Conversion Factors

There are a number of situations where conversion factors must be applied when calculating the DG5 value of larger premises and buildings. Normally a single property or house is considered to constitute one DG5 property. This approach assumes the single property is of typical size, with a typical number of appliances discharging into the sewer network.

For larger premises and buildings that are likely to have more appliances a conversion factor needs to be applied for the full DG5 value of the property to be realised and prioritised accordingly. Properties that are classed as large commercial premises should have the conversion factor applied.

The DG5 value will be calculated by adding together all the loading units for all the appliances in the building and dividing this figure by 24 to produce the DG5 equivalent.

Water Fitting (See note 1)	Loading Units
WC Flushing Cistern	2
Wash Basin in a house	1.5
Wash Basin elsewhere	3
Bath (Tap nominal size 20mm)	10
Bath (Tap nominal size larger than 20mm)	22
Shower	3
Sink (Tap nominal size 15mm)	3
Sink (Tap nominal size larger than 15mm)	5
Spray Tap	0.5
Bidet	1.5
Domestic Appliance (subject to a minimum of 6 LU's per house) (See note 2)	3
Communal or commercial appliance	10
Any other water fitting or outlet (including a tap – but excluding a urinal or water softener)	3

Note 1; Reference to any fitting includes reference to any plumbing, outlet, dedicated space or planning or other provision for that fitting

Worked Example – 1 Alanbrook Road, Belfast (Thales Factory)

Water Fitting	No. per property	Loading Unit	Total
WC flushing cistern	46	2	92
Wash basin in a house	0	1.5	0
Wash basin elsewhere	0	3	0

Bath (tap nominal size 20 mm)	0	10	0
Bath (tap nominal size larger than 20 mm)	0	22	0
Shower	4	3	12
Sink (tap nominal size 15 mm)	70	3	210
Sink (tap nominal size larger than 15 mm)	0	5	0
Spray tap	0	0.5	0
Bidet	0	1.5	0
Domestic appliance	0	3	0
Communal or commercial appliance	0	10	84
Any other water fitting or outlet (including a tap – but excluding a urinal or water softener)	10	3	30
			428

DG5 Equivalent;

$$428 / 24 = 17.83 \text{ (rounded up to 18 units)}$$

13.1.12 At Risk Categories

Properties are placed under one of the following three categories in the DG5 Internal Flooding Register:

1 in 10 – Frequency of flooding once in 10 years; Properties are classified here if either:

- The property has flooded once in 10 years from non-severe rainfall events
- The property has flooded from a single event shown to be less than a 10-year return period storm but more than a 5-year return period storm. (weather report required)

2 in 10 – Frequency of flooding twice in 10 years; Properties are classified here if either:

- The property has flooded more than once in 10 years from non-severe rainfall events
- The property has flooded from an event shown to be less than 5-year return period (weather report required)

1 in 20 – Frequency of flooding once in 20 years; Properties are classified here if either:

- This is the default category for all historical flooding properties coming into the register.
- The property has flooded from an event shown to be less than 20 year return period but more than 10 years. (weather report required)

Properties that have previously flooded and are included in the DG5 Internal Flooding Register but which have since not flooded in the last 10 years during a non-severe rainfall event, will be placed into the 1 in 20 category.

13.1.13 Timing Out

Properties can move between the different DG5 Internal Flooding Register categories, if they have not had a repeat flooding incident over a certain period of time.

Properties at risk of flooding internally due to hydraulic incapacity will move between the flooding register categories on a 'timing out' basis, as follows:

- If a '2 in 10' property does not suffer repeat flooding, caused by hydraulic overload, within 6 years it will be downgraded to '1 in 10'.
- If a '1 in 10' property does not suffer repeat flooding, caused by hydraulic overload, within 11 years it will be downgraded to a '1 in 20'.
-

13.1.14 Restricted Toilet Use

RTU is an NIAUR AIR reporting requirement. Properties suffering from RTU are placed in one of the three categories discussed in Section 4.1.12, and recorded in the AIR.

13.2 Format of Internal Flooding Register

13.2.1 Record Data held on each Property

The records held on each property on GIS will include at least;

- Date of Incident
- Property Address – Property Number, Street Name, Town and Postcode
- Grid Reference
- Sewer Type
- Asset causing flooding incident
- Library of Documented Evidence for addition
 - Field Manager Report, GIS Map, Incident Report, Ellipse Report, Met Office Report (if applicable) and Confirmation of CCTV
- Library of Documented Evidence for removal
 - DG5 Beneficial Use Form

13.2.2 Property and Incident Unique Identifiers

A DG5 incident number is used within the DG5 Internal Flooding Register and all related registers as a unique identifier to distinguish one incident from another.

Structure of DG5 Property and Incident Numbers

- DG5P – corporate indicator that the record is a DG5 Property
- 0000001 – unique seven figure number for each DG5 Property
- DG5I – corporate indicator that the record is a DG5 Incident
- 0000002 – unique seven figure number for each DG5 Incident

The generated seven figure number is unique for both DG5 Properties and Incidents and no two DG5 Properties or Incidents can have the same seven figure combination.

All historic and new DG5 properties will be assigned a DG5 incident number, using the above format. DG5 Property and Incident numbers will be allocated in order of date added to the register.

14 Internal Flooding Register – Periodic Maintenance

Periodically the register should be assessed to check for the following:

- Properties that have been recorded as flooding but have not had a repeat flooding after 10 years will be demoted to the 1in 20 category within the register but they are not automatically removed from the register.
- Comprehensive audits of the DG5 Internal Flooding Register must be carried-out annually (or when necessary) to ensure the information held within is accurate and reflects what has happened throughout the year.

15 Internal Flooding Register – Solutions

15.1 Permanent Solutions

A permanent solution to flooding risk is dependent on the cause. Where the problem can be isolated, a quicker and cheaper permanent solution could be implemented. However, this is not always the case and a permanent solution can take several years to construct due to the solution development, design, and tendering and construction process.

In some cases the cost involved to rectify a problem will far exceed the benefits. This means that where the solution cost exceeds a certain level per property then other action may need to be considered i.e. 'Right to purchase', 'Mitigation' or 'Do nothing' alternative.

A permanent solution will enable a property to be removed from the register.

Permanent solutions can fall into one of the following categories:

- Sewer upsizing and flow attenuation; these types of solutions require a hydraulic model and extensive data collection and analysis to understand the extent of the problem and therefore identify the appropriate cost effective solution.
- Property isolation; if a single or small number of properties are shown to be affected then where the cost of other more traditional solutions far exceeds the benefit then isolation may be seen as the most appropriate long term solution.
- Right to Purchase; it is not NI Water's normal policy to purchase a customer's property. However, where there is extreme and persistent flooding the most cost-effective solution may be seek to purchase the at risk property.

15.2 Mitigation and Contingency

Mitigation will be considered where the costs of capital schemes are high or where permanent works are not planned in the short term. Where it is appropriate to do so, mitigation measures can offer customers some degree of protection against internal flooding from the public sewerage system i.e. reduce the frequency of incidents.

Mitigation measures can be applied to either persistent internal flooding or where there is severe flooding to sensitive areas. However, mitigation measures will not enable a property to be removed from the register. Where a property has flooded as a result of failure of a mitigation device it should be reported as equipment failure.

Properties with mitigating measures installed to prevent internal flooding will be defaulted into the 1:20 category of the DG5 Internal Flooding Register and will be prioritised accordingly for solution.

15.3 Prioritisation and Cost Benefit Analysis

The company does not at present carry out cost benefit analysis on DG5 projects. However to allow prioritisation of schemes the process set out below is proposed.

- Review of existing CWP to ensure DG5 related programmes of work are captured.
- Assessment of DG5 Register to develop prioritisation methodology relative to frequency and impact.
- Receipt and analysis of feasibility studies to compliment prioritisation matrix including cost details.
- Review to ensure alignment with Regulatory Reporting on AIR and CIM returns.

16 Internal Flooding Register – Removals

A DG5 Property can be removed from the DG5 Internal Flooding Register when one of the solutions described below has been implemented. This will usually be triggered by construction of a CWP Scheme, or new information on the causes of historic events. Removal of a property from the register can only be done through a formal business process and where there is a justifiable reason, supported by sound evidence.

These properties will have supporting documentation to demonstrate that the grounds for removal have been met. This evidence will be presented to the DG5 Panel for formal removal of a property. Solutions to be considered before property removal from the register can be approved include;

- Permanent Solution; where a permanent solution has been constructed and is in beneficial use, the Capital Programme Team will present a DG5 Beneficial Use Form to the DG5 Panel as a record of confirmation of the flooding scheme completion. This will include the properties to be removed and cost of solution apportioned to flood prevention. The Beneficial Use Form will be approved by the DG5 panel members, and the identified properties removed from the DG5 Internal Flooding Register. They will in turn be re-categorised as removed due to ‘company action’. The property will remain in this category of the register indefinitely or until such a time as the property floods again.
- Minor Works; where there has been evidence of asset deterioration, e.g. subsidence or through third party interference and a minor asset improvement project has been completed to rectify the flooding issues. Evidence that the flooding has been resolved will come from the appropriate FM and signed off by the DG5 Panel members.
- Better information - Severe weather; the event causing the property to be on the DG5 Internal Flooding Register is confirmed to have > 20 year return period (i.e. severe) and supported by appropriate meteorological or DAS investigation data.
- Better information - Flooding due to Third party; where investment on the sewer network would not prevent a repeat internal flooding incident and NI Water does not have responsibility for the problematic sewer the properties should be removed from the DG5 Internal Flooding Register. The details should be recorded in the AIR commentary. However, if the responsibility for the problematic sewer is shared with NI Water, then the property remains on the Register.
- Better information - Flooding is due to other causes; where it can be confirmed that flooding has occurred due blockage, collapse or equipment failure details will be recorded as ‘other causes’ within the excluded section of DG5 Internal Flooding Register.

Note: Mitigation will not enable a property to be removed from the register.

Finally, errors can happen;

- Error, identified by Audit or Investigation. Where an error can be clearly shown to have occurred, then the property can be removed.
- Operational improvements are an unlikely explanation for justifying removal of properties from the register. Therefore any supporting data must be robust, for example, CCTV data. In the case of permanent solution then the property would be removed.

17 Annual Information Returns

The DG5 Internal Flooding Register will contain the information required to prepare Table 3, of AIR. The information required for the AIR will be retrieved from DG5 Internal Flooding Register.

- AMS will report on internal flooding incidents due to hydraulic incapacity held in the DG5 Internal Flooding Register.
- NSBU will report on internal flooding incidents due to other causes held in the ‘excluded’ section of the register
- AMS and NSBU will collaborate closely when compiling the AIR for internal flooding.

Appendix 1 – Asset Performance Customer Questionnaire

Appendix 2– Asset Performance DG5 Determination Report

ASSET PERFORMANCE DGS DETERMINATION REPORT	
Name and Address (Add BT Code)	
Incident Date	
Flood Type	
Rainfall Report	
Ellipse Notes	
CEMS Notes	
Customer Comments	
F.M. Comments	
Restricted Toilet Use	
Other Information Sources e.g. Pollution Reports, WWPS alarms, Captrax, Flooding Incident Reports, CCU etc.:	
GIS Assessment	
Existing Sewer Details	
Type of sewer	
Diameter (mm)	
Material Type	
Year Laid	
Sewer Location	
CCTV Carried Out	
Sewer Desilted	
Comments	
Topographical Assessment	
Possible Number of Other Properties Involved	
Flooding Mitigation (NRV's etc.:	
Drainage Area Catchment	
D.A.S.'s Network Model Available	
DAS is there Predicted Flooding	
Summary	
Determination	
Signed	
Date	

Appendix 3– DG5 Flooding Incident Report

Incident Report Form Contractor
APPENDIX 3 – Incident Report Form Contractor



Northern Ireland Water – Flooding Incident Report

Work Order Ref No: _____ Name: _____

Location: _____

Date: _____ Arrival time: _____

- 1) Internal Flooding:
- | | | | |
|-----------------------------|--------------------------|--------------------------|--------------------------|
| Main Sewer | <input type="checkbox"/> | Lateral Sewer | <input type="checkbox"/> |
| Adjacent properties flooded | <input type="checkbox"/> | Attached garages flooded | <input type="checkbox"/> |
| Basements/Cellar flooded | <input type="checkbox"/> | Restricted Toilet use | <input type="checkbox"/> |
| Kitchen | <input type="checkbox"/> | Hallway | <input type="checkbox"/> |
| Living room | <input type="checkbox"/> | Dining room | <input type="checkbox"/> |
| Shop/integral store | <input type="checkbox"/> | Downstairs bathroom | <input type="checkbox"/> |
- 2) External Flooding:
- | | | | |
|-------------------------|-------------------------------------|--------------------------------|-------------------------------------|
| Main Sewer | <input checked="" type="checkbox"/> | Lateral Sewer | <input type="checkbox"/> |
| Public road/footpath | <input type="checkbox"/> | Public area | <input type="checkbox"/> |
| Agricultural land | <input type="checkbox"/> | Curtilage | <input checked="" type="checkbox"/> |
| Detached garage flooded | <input type="checkbox"/> | Detached shed or store flooded | <input type="checkbox"/> |
- 3) Comments on cause of reported incident: (Select only one category below)
- | | | | |
|-----------------------|-------------------------------------|-------------------------|--------------------------|
| Blockage | <input checked="" type="checkbox"/> | Collapsed sewer | <input type="checkbox"/> |
| Defective road gulley | <input type="checkbox"/> | Defective private drain | <input type="checkbox"/> |
| M&E equipment failure | <input type="checkbox"/> | Other: | |
- 4) Clean up operations:
- | | | | | | |
|--------------|--------------------------|-------------------------|--------------------------|-----------|-------------------------------------|
| Not Required | <input type="checkbox"/> | Further Action Required | <input type="checkbox"/> | Completed | <input checked="" type="checkbox"/> |
|--------------|--------------------------|-------------------------|--------------------------|-----------|-------------------------------------|
- 5) Previous History:
- | | | | | | |
|-----|--------------------------|----|-------------------------------------|-----------|--------------------------|
| Yes | <input type="checkbox"/> | No | <input checked="" type="checkbox"/> | Not Aware | <input type="checkbox"/> |
|-----|--------------------------|----|-------------------------------------|-----------|--------------------------|
- 6) Weather Conditions:
- | | | | | | | | | | | |
|-----|--------------------------|----|-----|-------------------------------------|-------|--------------------------|--------|--------------------------|-------|-------------------------------------|
| Dry | <input type="checkbox"/> | OR | Wet | <input checked="" type="checkbox"/> | Heavy | <input type="checkbox"/> | Medium | <input type="checkbox"/> | Light | <input checked="" type="checkbox"/> |
|-----|--------------------------|----|-----|-------------------------------------|-------|--------------------------|--------|--------------------------|-------|-------------------------------------|

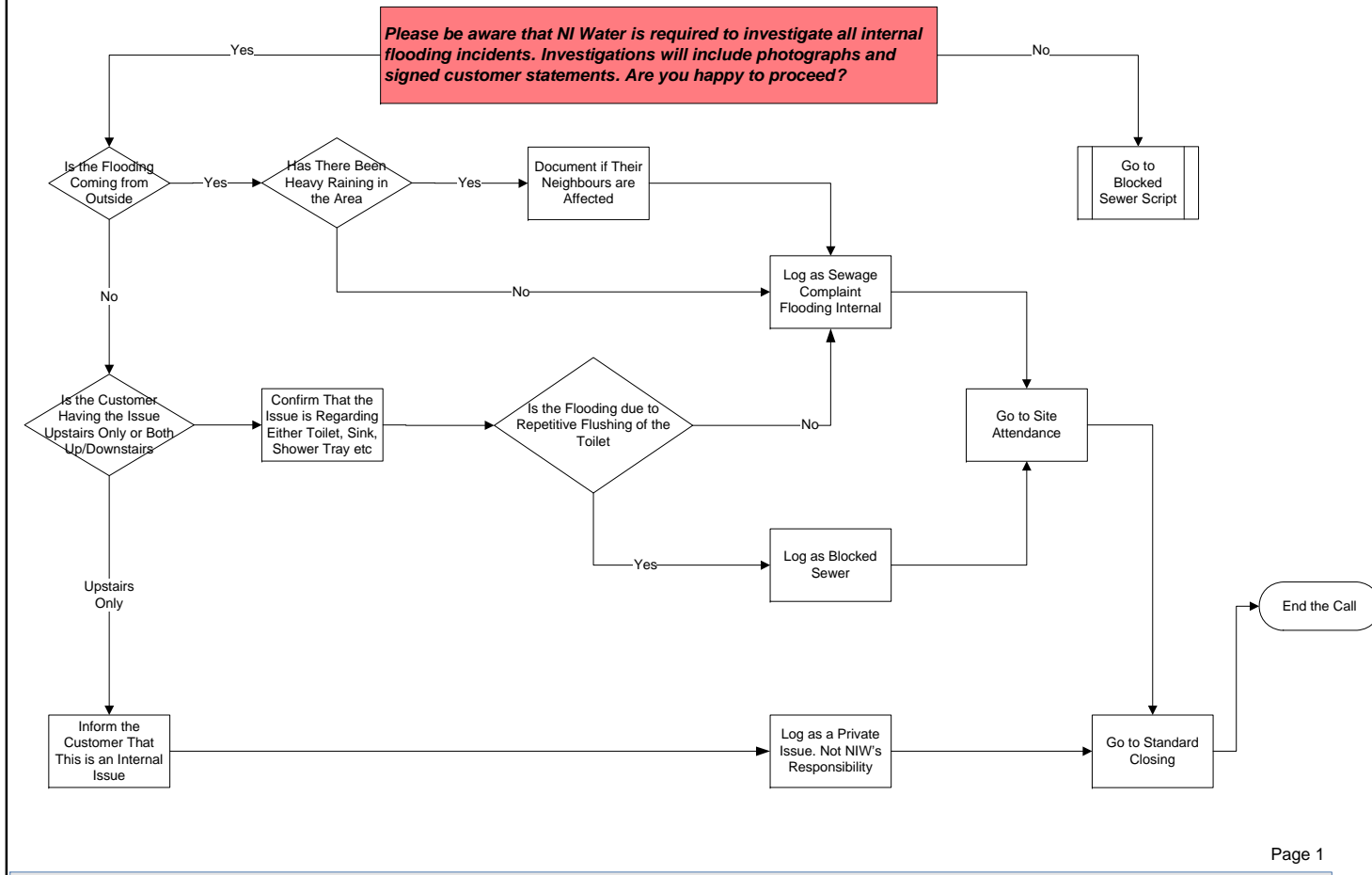
Comments: Especially for Flooded jobs or Follow on jobs

PHOTO FOR FLOODED JOBS:

Appendix 4– Call Centre DG5 Caller Script

INTERNAL FLOODING eGAIN SCRIPT

WEDNESDAY, MARCH 07, 2012



Northern Ireland Water

Level of Service Methodology

DG6 Response to Billing Contacts

DG6 RESPONSE TO BILLING CONTACTS

Methodology and Procedures

Northern Ireland Water (NIW) has contracted out the provision of Customer Billing and Contacts (CBC) to Echo Managed Services (Echo). Echo is the provider of CBC services to NIW.

DG6 response to billing contacts (Process Summary):

1. Telephone Contact (go to step 4) or Documentation received (in Capital House)
2. Documentation opened by the Echo Payment Processing Team and passed to the NIW Customer Support Team
3. Scan and Index (documentation only which is archived after scanning)
4. Raise and allocate CMS contact type
5. Assess and Investigate
6. Update and compose response

All customer response letters are printed by NIW Contacts Team and dispatched locally. Exceptions to this include correspondence generated through DSTI which are bills (including recalculated bills) and automated recovery letters / correspondence. The process for printing and distribution of bills and other stationery on a daily basis is detailed below:

Items generated in Rapid:

Information received and updated by the agent, (which automatically updates the system), may trigger the system to create an item of stationery. The agent can also take a course of action (which will manually update the system) and may also trigger an item of stationery. This may include receipt of a leakage form from the customer, Data Protection Letter, Transfer of Responsibility etc. All such contacts are recorded as closed as at the date of dispatch.

The BSA team, within Echo, reconciles numbers of bills, letters and forms and sends all relevant items of stationery created the previous day through to DSTI for printing. These are signed-off, printed, enclosed and prepared for pick-up by TNT. Currently only bills, recovery notices and letters are handled this way. For DG6 reporting purposes the date of resolution of the item or date of the substantive response is used as the closure date.

Definitions

A billing contact covers any communication from a customer or their representative (on receipt of written permission from the customer as per data protection) regarding a customer account which requires a response or an action by NIW and does not constitute a written complaint. A customer's representative may be a solicitor, Citizens Advice Bureau, local MLA, or stakeholder representative, e.g. Ulster Farmers Union or CCNI.

Billing contacts can be received by telephone, in writing, by e-mail, by fax, by personal visit or written on a piece of company correspondence, for example a bill which is returned to NIW. Offensive or abusive written contacts are not included.

A billing contact not received in writing is a DG6 event. A written communication, however, may be classified as a DG6 or DG7 event. Where the content or tone of written communication indicates an element of dissatisfaction, however mildly worded or unjustified, it should be classified as a written complaint and reported under DG7.

Billing contacts include calls that are made to pay a bill as this will result in an action being taken on the customer's account.

Email / Faxes: When an e-mailed, faxed or hand delivered contact is received after 16:30 it will be scanned, logged and indexed on the next working day. The date of receipt recorded will match the actual date of receipt.

Emails and faxes, which can be sent at any time, that are received outside or normal operating hours shall record the receipt date as the date it was delivered to the company. For example, if an email is received on a Saturday this is recorded as day 0. The next working day (Monday) would be counted as day 1. If an email is received on a Sunday, then this is recorded as date of receipt – day 0 and Monday as day 1.

Exclusions

A query relating to billing for domestic customers, including the provision of meters is not a DG6 contact, as domestic customers are not billed by NIW.

For reporting purposes, other exclusions are:

- Written complaints (these are handled as DG7);
- Correspondence from banks re direct debits (clarified with NIAUR as excludable);
- Contacts logged in error;
- Freedom of Information requests;
- Calls relating to septic tanks and septic tank payments (these are non-appointed);
- Calls relating to new connections, not yet completed; and
- Copy correspondence from and to NIW personnel.
- Correspondence relating to payment processing, e.g. BACS notifications, payment giros and remittance advice notes.

Multiple Accounts

NIW received clarification from the Regulator as to how contacts from customers with multiple accounts should be logged, so as not to over or understate the DG6 position.

Therefore, for reporting purposes, a DG6 contact received; by a customer holding multiple accounts with NIW that is requesting an update to their standing account details will be recorded as 1 DG6 event on 1 account and as a non-reportable event on the remaining accounts.

End of year (contacts not dealt with at end of year)

As per NIAUR guidance, if a billing contact is not resolved by the time the year-end report is run, the contact is included in the total number of billing contacts received for the year in which it is received.

The contacts which are open at end of year are included in the reported figures for the number dealt with within 5 working days. This is based on the assumption that a holding response has been issued within 5 working days and that the reported date of closure will, at the point of final resolution, be backdated to the date on which the holding response was issued.

It was later verified that, per the assumption above, each of those contacts still open at yearend were closed in line with the aforementioned methodology with a reported closure date within 5 working days of receipt.

Further, the response time for any open billing contacts received within the reporting year is reported to be within 5 working days based on the assumption that a substantive holding response has been issued for each by working day 5. On resolution of the billing contact, these billing contacts will be closed back to the date of the holding response. A sample of 70 of the 355 open DG6 contacts were checked to see if they had a holding letter issued on or before working day 5 and 100% of the 70 sampled did.

Auditing

Internal Audits – This process falls within Echo's Quality Management system and is audited several times a year under ISO9001/2000.

Performance and the achievement of Billing enquiries are recorded as per the Contact Handling Expected Service Levels which are measured monthly in accordance with *Contract Schedule 2.2*. Detailed monthly monitoring reports of actual performance are generated by Echo within CorVu and presented in the Monthly Business Review Pack (MBRP) to NIW within 5 working days of the end of each month covering lines 1.1.1 to 1.1.9 in accordance with schedule 8.4.

Validation of DG6 figures provided by Echo are carried out monthly by NIW in accordance with *Contract Schedule 2.2* and recorded in the "NIW Response to the Monthly Business Review Pack" document which is published for comment and review. Any discrepancies on monthly DG6 performance are raised with Echo and escalated.

Echo regularly performs quality reviews against contacts received to ensure contacts are dealt with correctly. Although no documentation is made available to NIW, regular reviews are carried out by Team Managers within Echo, including:

- Weekly call listening;
- Monthly scoring based on call listening and feedback to individual agents;
- Coaching and feedback; and
- Daily monitoring of all billing contacts with team feedback when necessary.

CSD Services MI and Data Team performs a call listening exercise on a monthly basis. Each month a random selection from the total calls received is made. This selection includes both billing and operational calls. Billing calls are assessed for:

- For accuracy;
- To determine if memo contents are clear and precise;
- To ensure the conversation is accurately recorded on Rapid; and
- To ensure correct use of CMS code.

Any findings are reported back to Echo management through the Response to the MBRP.

An end to end process review is carried out by internal audit.

Sources of information

System used

The telephony system comprises of a suite of Virgin Media, Avaya products and a Cirrus ACD. The Virgin Media switch is tightly integrated with the Cirrus platform which provides CTI (Computer Telephony Integration) and ACD (Automatic Call Distribution). Calls can be automatically routed to appropriately skilled agents ensuring a quality response to the customer, at first point of contact. Cirrus is also the call logging system for attaining recorded calls.

The software comprises of Call Media Enterprise Console with an integral reporting suite which distributes calls based on skills sets and SLA's.

Written correspondence is date stamped at point of receipt by Echo (unless received after 16:30), scanned on a (Kodak i 620 scanner) and indexed. This safeguards security and minimises administration. Once correspondence is scanned it is indexed and batched with an allocated batch number. The scanned image is then available to Rapid Users.

All contacts received should be recorded on Rapid. Reports from CorVu are generated by Echo, validated by NIW, and are used to report on DG6 performance.

Actual data

Actual data is extracted from the billing system RapidXtra using CorVu. CorVu 'DG6 Received QRY (Live)' is used to calculate the total number of DG6 contacts received (table 4, line 1) and to calculate the DG6 closed performance (table 4, lines 2-5). DG6 data analysis is produced monthly and re-run for the entire reporting year, providing the necessary information essential for the Director General's reporting requirements.

Sampling

Actual data is used to report DG6 performance (table 4, lines 1-5). Sampling is only used by NIW for data quality purposes and to provide comfort around the assumption that DG6 contacts open at year end will be closed back to a holding letter issued on or before working day 5.

Reliability

All data is taken from the main billing system to ensure it is reliable and accurate.

Responses

This is defined as a response to a billing contact which may be by telephone, written correspondence or personal visit. Responses will provide the following:

An explanation of NIW's relevant policy or procedure and indicates why, in NIW's opinion, no further action on the customers billing contact is required; or

Informs the customer when action on his/her account will be taken if action cannot be taken immediately due to circumstances beyond NIW's control, for example customer needs to obtain clearance from third party, such as a landlord.

Whichever type of response is dispatched it must substantively answer all points raised by the customer and be recorded and date stamped.

Use of telephone

The telephone is the company's preferred method of responding to a billing enquiry. All DG6 related telephone calls should result in a CMS memo being raised and coded by the agent according to the individual enquiry. An audit trail of the response will be recorded on the billing system (Rapid) as a memo with a CMS type. A full record of the actual conversation and its outcomes is held on Call Media. A CMS is created on Rapid and contains information including:

- CMS type;
- Customer name;
- Customer address;
- Telephone contact;
- Query details; and
- Action required.

Use of letters

Letters are only used when it is not possible to deal with the customer by telephone, when a written reply has been requested by the customer and when it is deemed more appropriate by the agent. Telephone calls not dealt with at first point of contact are dealt with by the Echo CRC Workflow department. A CMS is created on Rapid and contains information including:

- CMS type;
- Customer name;
- Customer address;
- Telephone contact;
- Query details; and
- Action required.

Holding letters are sometimes used but are customised by the agent. They are held within Rapid and are posted directly to the customer and not through DSTI.

Use of personal visit

If a DG6 telephone contact requires a personal visit, (e.g. a meter query team site visit), the agent will raise a CMS contact. This will be transferred to the Echo CRC Workflow Team who takes ownership for resolution and closure of the contact. The Echo CRC Workflow Team agent will send a holding letter to the customer once the visit request has been raised. It is this date/time of this letter that is used for closure.

Response time

This is the number of working days between receipt of a contact by NIW up to and including the day of despatch of a response. For the purpose of this calculation, the day of receipt; provided it is a working day; is counted as day zero and the next working day as day one.

Emails and faxes, which can be sent at any time, that are received outside of normal operating hours shall record the receipt date as the date it was delivered to the company. For example, if an email is received on a Saturday this is recorded as day 0. The next working day (Monday) would be counted as day 1. If an email is received on a Sunday, then this is recorded as date of receipt – day 0 and Monday as day 1.

CCNI

Written billing contacts received via the Consumer Council for Northern Ireland (CCNI) office on a customer's behalf are included.

Holding reply

This is defined as a response to a billing contact which advises the customer that NIW will need to undertake additional research or other actions before being able to respond to the customer's contact. A holding reply is counted as a substantive response if it informs the customer what further action needs to be taken to respond to the query and includes a date by which investigations or further actions will be complete and by when the customer will receive a further communication from NIW.

A holding reply will close a contact for DG6 reporting purposes but not for NIW until all actions have been taken. NIW provides a reply within 5 working days of the customer contact and a further holding letter is sent if there is a delay in finding a resolution. The company will include the number of days in which they will contact the customer again. Enquiries and follow up questions will not be counted as a DG6 contact.

Other Issues

Please refer to DG6 Company Commentary.

Northern Ireland Water

Level of Service Methodology

DG7 Response to Written Complaints

DG7 METHODOLOGY 2022/23

Methodology and Procedures

Northern Ireland Water (NIW) has contracted out the provision of Customer Billing and Contacts (CBC) to Echo Managed Services. Echo Managed Services (Echo) are the provider of CBC services to NIW. Written complaints are dealt with in-house by the NIW Intelligent Operations function. Customer Support Agents within the Complaints & Executive Mail Team scan, log & index documentation whilst Customer Service Officers within the team case-manage and respond to the written complaints.

The following high level process steps are followed:

- Whitemail received (in Capital House);
- Whitemail opened by Payment Processing (Echo) who separate payments & non-customer documentation before scanning the remainder and creating a batch on RapidXtra, which is then indexed by Customer Support team in Westland;
- Emails printed and sifted into DG6, DG7 and non-reportable categories by Customer Support;
- documentation date stamped, scanned, logged & indexed by Customer Support;
- CMS contact raised to the NAS Account Services inbox in RapidXtra (Customer Billing & Contact Management System) and case raised in OEBPM (upgraded version of the BPM solution);
- cases allocated to Customer Service Officers;
- Customer Service Officers assess, investigate and case-manage the complaint as appropriate;
- request for information and/or action sent to relevant part of the business; then
- review information provided by business, update accounts, draft & issue response.

Allocation to DG7

Written complaints are recognised from all other correspondence by following the definition of a written complaint as set out in the Reporting Requirements and Definitions Manual. All incoming written correspondence is passed to Customer Support. It is then sifted and categorised as DG6, DG7 or non-reportable according to the Utility Regulator's definitions. Following that, it is date-stamped, scanned, logged and indexed by Customer Support.

The reported response times for all written complaints are derived from the RapidXtra database. All written complaints, with the exception of exclusion categories detailed herein, are included in this total.

Definitions

A DG7 complaint is defined as any written communication from a customer or customers' representative (e.g. Citizens' Advice Bureau, solicitor), alleging action or inaction, or service or lack of a service on the company's part or that of its agent or contractor has fallen below the expectation of the customer – even if written in mild and friendly terms. This includes any expression of annoyance or dissatisfaction by the customer, or disagreement with the company.

Written complaints include letters, e-mails and faxes.

Also included are:

- second or subsequent complaints;
- general complaints;
- complaints that may seem unfair or frivolous;
- complaints received by Consumer Council for Northern Ireland; and

- complaints written on returned Company letters or stationery (e.g. bills).

Should the Company receive a petition, it is classed as a DG7 contact and the Company will respond only to the customer who has sent in the petition. This will be classed as one complaint although the complaint and the response letter will be archived against the account of each customer that has signed the petition where practical.

Exclusions

The following are excluded from DG7:

- cheques and stubs;
- written DG6 billing queries;
- all other Company mail;
- complaints that are sent anonymously;
- complaints that are offensive or abusive;
- complaints referring to non-appointed activities;
- complaints returned alongside customer satisfaction surveys;
- complaints not about the services and functions of the Company (e.g. complaints about executive salaries, advertising campaigns);
- complaints about the activities of other utilities (for example signage around trenches);
- complaints about recreational and amenity activities not defined as duties imposed by the Water and Sewerage Order 2006; and
- Public liability claims (although any related complaint should be included as normal).

End of Year (contacts not dealt with by end of year)

As per UR guidance, if a complaint is not resolved by the time the year-end report is run, the complaint is included in the total number of complaints received for the year in which it is received.

Further, the response time for any open complaints received within the reporting year is reported to be within 10 working days based on the assumption that a substantive holding response has been issued for each by working day 10. On resolution of the complaint, these complaints will be closed back to the date of the holding response.

Auditing

Each complaint also undergoes a series of quality assurance checks. The first is carried out by the Customer Service Officer who has been allocated the case.

They check that the case has been:

- correctly categorised as DG7;
- coded using an appropriate CMS code; and
- logged to the correct account(s).

The Customer Service Officer verifies that the information received from within the business is suitable to use in response to the complaint before the reply is drafted.

Once the response has been drafted, it is subject to a self-assessed Quality Assurance check during which adherence to an agreed Letter Writing Checklist is tested.

The Complaints & Exec Mail Team Manager/Supervisor performs further monthly sampling of contact categorisation to ensure accuracy. These additional monitoring systems check:

- DG7 categorisation;
- CMS description; and

- Advice Code for closed complaints (existence of and; accuracy of).

Sources of Information

Complaints are sorted into the relevant categories, date-stamped, scanned, logged then indexed, therefore ensuring security and minimising administration.

Each complaint received is scanned using the Fujitsu FI 6670 scanner. At the end of each “batch” of correspondence scanned, a batch number is allocated. The images can then be viewed by Customer Support on their PC and indexing can begin. During indexing the following details are input:

- Property and/or Customer reference;
- Date of receipt;
- CMS group;
- CMS description; and
- Document type

The Operator ID is automatically populated based on which member of Customer Support log the correspondence. At the indexing stage the scanned items are categorised, allowing the CMS description to be applied.

Changes in system during the reporting year

There were no major changes to the key systems in 22/23.

Actual Data

Actual data is extracted from the billing system RapidXtra using CorVu. CorVu ‘DG7 Received QRY (Live)’ is used to calculate the total number of DG7 contacts received and to calculate the DG7 closed performance. DG7 data analysis is produced monthly and re-run for the entire reporting year, providing the necessary information essential for the reporting requirements.

Sampling

Sampling is not used in compiling received data for DG7. Sampling is only used by NIW for data quality purposes.

Reliability

All data is taken from the main billing system to ensure that it is reliable and accurate.

Responses

Upon receipt of a complaint, we ensure that relevant action is undertaken, provide a substantive response and ensure the contact is closed on the Customer Contact Management System (RapidXtra).

NIW replies to all written complaints, regardless of the sensitivity of the issue or subject raised by the customer.

Our responses do one or more of the following:

- provide an explanation of our policy or procedure and indicate why no further action is required;
- inform the customer that action to resolve the complaint has been taken and identifies when this action occurred;
- informs the customer when the action to resolve their complaint will be taken if it cannot be done immediately e.g. capital works programme scheduled for completion in the future;

- answer all issues or questions raised by the customer.

Use of Telephone

Where appropriate, telephone calls are used to respond to written complaints. Telephone calls are also used to update customers as the progress of complaints under investigation. The customer account on RapidXtra is annotated with details of the call in these cases.

Use of Standard Letters

Standard letters are not used to respond to complaints - all responses are personalised and customised.

Use of Personal Visit

When a personal visit is used to respond to a written complaint, a letter confirming the content of the visit is provided to the customer. The date of the visit is used as the date of response.

NI Direct

Complaints received through NI Direct are not reported.

Telephone Complaints

Complaints received via telephone are reported as DG9 telephone complaints, not DG7. Billing telephone complaints are reported as DG6.

Date of Receipt

Written complaints are date-stamped per the date of receipt.

Date of Dispatch

The date of dispatch refers to the date on which a response is sent to the customer. The date of dispatch is recorded as the date closed.

Response Time

This is the number of working days between receipt of a contact by NIW up to and including the day of dispatch of a response. For the purpose of this calculation, the day of receipt (provided it is a working day) is counted as day zero and the next working day as day one.

When an email or fax is received after 16:00 it will be logged using the actual date of receipt, not the date on which it is scanned.

The reported date of receipt for emails/faxes received outside of normal operating hours is the actual date on which the complaint was delivered to the company. For example, if an email is received on a Saturday, this is recorded as day zero. The next working day (normally the Monday) would be counted as day one. If an email is received on a Sunday then this is recorded as date of receipt (day zero) and (normally) Monday as day one.

Substantive Holding Reply

This is defined as a response to a written complaint which advises the customer that NIW needs to undertake additional investigation or other actions before being able to provide a full response. A holding response is considered substantive if it advises the customer what further action needs to be taken in order to fully respond, when this will be done and when they will receive a further communication from NIW.

Items remain open until all actions have been completed but will be closed back to the date of the holding response for reporting purposes when said actions have been completed.

When a date by which investigations or further actions will be complete cannot be given, we will give the date by which we will update the customer.

Holding responses can be issued in writing or provided by telephone.

Repeat Contact

Where a complaint has been responded to and results in a period of correspondence each written contact is treated as, and reported as, a separate complaint.

This is done even if NIW consider the complaint has been dealt with as far as we are able.

Consumer Council for Northern Ireland (CCNI)

Complaints received in writing via CCNI will be logged as complaints and recorded in DG7 figures. All complaints from CCNI are received in writing.

CCNI enquiries and follow-up questions are not recorded as complaints.

Complaints to or about Contractors

Complaints made directly to contractors about work carried out on our behalf are recorded following notification to NIW through agreed process. Such complaints will be recorded even they are handled directly by the contractor.

Complaints about contractors received directly by NIW are reported even if they are referred to the contractor to deal with.

Holding Response & Frequency

Monitoring systems have been in place throughout the reporting period to support recording on the number holding responses issued throughout 22/23.

System-based report data was used to derive the number of holding responses issued between 01/04/22 and 31/03/23.

In cases where the investigations were on going by the expiry date of the initial holding response, a further holding response will have been issued.

Based on the recorded data, we can say that one (or more) holding response was sent in relation to 166 DG7 contacts received in 22/23. Therefore, it can be concluded that one or more holding response was issued in relation to 9.16% of the DG7 contacts received during 22/23.

Other Issues

Please refer to the DG7 Company Commentary.

Northern Ireland Water

Level of Service Methodology

DG8 Bills for Metered Customers

DG8 - BILLS FOR METERED CUSTOMERS

Definitions

Every time a metered account is billed a reading type is updated onto the Rapid billing system (Rapid) to identify the type of reading.

The reading types and estimated indicator are used to distinguish the meter reading status of each metered account, which is subsequently analysed in Rapid to create the 'DG8 Meter Summary Analysis' report.

DG8 Reporting

The Rapid 'DG8 Meter Summary Analysis' report ensures we correctly identify each of the reporting requirements in the sequence shown.

The reading indicators are extracted from Rapid RPU005 meter consumption update screen. The 'DG8 Meter Summary Analysis' report extracts this information and compiles this in line with the requirements.

The report is run annually at the end of the financial year, covering the period 1 April to 31 March and includes all categories requested by the Director General for the June Return reporting.

A bill is only counted as issued if it is sent to the customer within the reporting year. Any bills that are sent after this date will be included in the following reporting year's figures.

Total Metered Accounts

The report confirms the number of active accounts with either water or water and sewerage consumption which are metered.

Company Reading and Billed

If a Company reading has been taken during the within the defined annual cycle period, and a bill created against that reading, it will be included under the 'Meters read by Company' indicator. The exception to this is those meters that are billed outside of Rapid (trade effluent meters).

Company readings are recorded by the Meter Reader (MR) via a PDA. Each day the MR will upload those accounts that have had a reading and or an abnormal reading from the PDA to Temetra, for transfer to Rapid.

No Bills Received During Reporting Year

Bill status is scanned for no bills issued during the reporting year and is reported under the 'Not Billed this year' indicator.

Meters included in this category are identified as having a reading entered but the 'bill sent' flag set to 'No'

Customer Readings

Reading types are scanned for not receiving a bill based on a Company Reading but at least one bill based on a 'Customer Reading' and will be included in the 'Meters read by Customers' indicator.

'Meters Read By Customer' represents the number and percentage of the meters read by the customer within the DG reporting year.

The Company encourages our customers to take readings themselves so that they are aware of their usage. Customer reads can be registered for billing purposes by using the On-line facility available on our website or by calling our billing line.

Customer readings are recorded via a correspondence management system. A team member will then update the account and issue a revised bill. A customer reading type indicator will be displayed on the system. The estimated read will also be visible on the system

Estimated Only

Any meters that have not satisfied any of the preceding indicators will be recorded under the 'Meters Estimated Only' indicator.

'Meters Estimated Only' represents the number and percentage of meters only estimated within the DG reporting year. The following read types are identified as estimates: Estimate Exchange Final, System Estimate, and Manual Estimate.

Unread for Two Years

If no Company reading exists during a two year period, it will be reported under the 'No Company Reading for 2 Years' indicator.

Specifically two years back from the end date of the DG report.

Exclusions

The following are excluded from the indicators:

- Charged on another basis (not metered consumption)
- Test meters
- Trade-effluent meters
- DRD or NIW meters
- Fire supplies
- Properties occupied continuously for less than six months
- Complex accounts – Including combination meters i.e. the 'low-flow' element is excluded.
- Void properties

Reading and Billing Frequency

Frequency of reading:

- Non-household properties are scheduled to be read twice a year. The reading schedule for each read is completed over a six month period, the 1st read cycle is April to September and the 2nd read is October to March.
- Non-household – large volume users are read and billed monthly.
- There are a number of meters that have been assigned a reading frequency of Annual Read within the Rapid system. However, these meters are either DRD Supply or Test Meters which fall under the permitted exclusions and will only be read to assist business requirements, as neither category generates a customer bill.

Frequency of Bill Issue:

- Household properties – the Company do not currently bill domestic properties
- Non-household – the Company aim to read at twice a year and bill twice yearly.
- Large non-household users – the Company aim to read and bill monthly.

Method of Meter Reading

Before the start of each reading period, whether monthly or six monthly, details of metered accounts scheduled for reading were transferred from Rapid to the Temetra system on the last working day prior to the commencement of the reading period.

The accounts are then downloaded on to an electronic data storage unit (PDA) to facilitate the actual reading of the accounts by a MR in the field.

The meter reading information obtained by the MR is then transferred back to Rapid from Temetra, which is subsequently updated upon the meter being read.

The data transfer from Temetra to Rapid is not solely automatic and currently requires manual assistance by the MAM team.

Abnormal Readings

An abnormal reading can be identified by one of two factors:

- A meter reading that gives a usage that does not fall in line with previous usage patterns, identified by the MR, billing system or customer.
- A meter reading that does not correlate with previous readings taken.

The PDA unit automatically calculates the usage between a new reading and the previous reading. The MR checks the usage against the previous readings that are displayed on the PDA. If the usage appears to be abnormal the MR will enter a report onto the PDA and or use a pre-set indicator to explain why (trouble codes).

A daily 'Rejected Readings' report is produced through the Rapid billing system that also identifies any abnormal usage that require further investigation. Each account on the report is checked and if accepted the reading will be utilised and a bill issued. If the rejected read cannot be added, a site visit request is raised to instruct a Meter Query Technician (MQT) to investigate and provide further information.

Previous Misreads

Accounts that are identified as having previously been misread are subject to re-calculation based on the most recent meter reading.

Access Denied / Meter Reading Unobtainable

In such instances that the Company is unable to gain access to the meter, a skip code is entered which identifies that access was denied. If the customer does not provide a reading before the billing run a system estimate is used.

Faulty Meters

Where a faulty meter is identified and a MR or MQT replaces the meter it is recorded on an MRD (Meter Replacement Docket). This is captured electronically on the Temetra reading system and the replacement actioned by MAM, or in a VR response with the replacement actioned by the contact agent managing the response.

Where NIW staff complete replacement projects such as installation of AMR meters on the Ards peninsula, these replacements are completed out of cycle and captured in paper form before being scanned and forwarded to MAM, who complete the replacement on Rapid. NIW are currently reviewing this process and developing an electronic replacement process to remove the need for physical paper MRDs.

If a MR or MQT cannot replace the meter, a MMR (Meter Maintenance Request) is completed which their FM signs off and sends to the Meter Maintenance (MM) team, MM then forwards the MMR to the Contactor. When the meter has been replaced, the Contractor advises MM of the replacement details. The old and new details will then be returned by MM on a MRD to MAM for updating on the billing system.

Updating, Post Bill Issue

If the Company has any disputed readings, the account will be suspended while further investigations are being made. Once the investigations are finalised, a revised bill will be issued if necessary.

Assumptions

Those accounts excluded from the analysis are categorised using the definitions provided by the reporting requirements, as noted above.

Additional Information

Echo, on behalf of Northern Ireland Water, are responsible for the billing activity.

Some meters are billed on a sundry schedule rather than the normal billing schedule within Rapid. These are Trade Effluent bills. Trade Effluent bills are excluded from DG8.

Northern Ireland Water

Level of Service Methodology

DG9 Telephone Contact

Definitions:

Principle Advertised Customer Contact (PACC) Points

For the purposes of the indicator, Principal means the main contact point(s) which customers are encouraged or directed to phone. Advertised refers to Customer Contact Points which are available in telephone directories, newspaper advertisements, Northern Ireland Water (NIW) website and NIW literature. It does not include temporary contact points which have been established to handle a specific topic.

NIW PACC points include:

- **Billing Enquiries:** 0345 877 0030
- **Debtline:** 0345 8770 050
- **Waterline:** 0345 744 0088
- **Leakline:** 0800 028 2011
- **Text Relay (for customers with hearing difficulties):** Registered users are provided with a prefix for any NIW number they wish to ring.

An MLA/ER Hotline (0345 300 6461) was initiated on 21st August 2007 to provide a direct means of contact for elected representatives and council members telephoning to enquire about specific issues in their constituencies.

In addition, the following dedicated campaign lines are in operation for certain sections of the community to aid NIW's response:

- Developers Line: 0345 877 0003
- Emergency Services: 0345 877 0008
- Telecare Quick Check: 0345 877 0080
- Closed Communities: 0345 877 0007

Telephone Contact

The indicator is intended to monitor incoming telephone traffic which can be regarded as originating from NIW's customer base. All calls received to telephone lines other than principle advertised customer contact points are excluded for reporting purposes (i.e. all other business lines).

Company Agent

NIW has contracted out the provision of Customer Billing and Contacts (CBC) to a 3rd party provider known as Echo Managed Services (Echo). Echo is the provider of CBC services and is based in Capital House, Belfast.

A company agent is defined as an employee of Echo (operating from a principal customer contact point), who operate the contact on behalf of NIW. All calls are answered directly by Customer Service Advisors who are direct employees of Echo.

Office Hours

The indicator covers office hours only. Office hours are defined as the hours which NIW's PACC points are open. These are detailed below:

- **Billing Enquiries & Debtline:** Monday to Friday - 08.00 to 20.00
Saturday - 08.00 to 18.00
Sunday - 12.00 to 18.00
- **Waterline:** 24 hours a day, 7 days a week, 365 days a year

- **Leakline:** 24 hours a day, 7 days a week, 365 days a year
- **MLA and dedicated lines:** 24 hours a day, 7 days a week, 365 days a year

Telephone Complaints

Calls received about the following water service issues are expected by NIAUR to be included as a complaint:

- no water;
- lack of pressure;
- leaks;
- taste and odour;
- discolouration; and
- hard water (except for simple enquiries, e.g., dishwasher settings).

In addition, calls received about the following wastewater service issues are also expected to be included as a complaint:

- sewer flooding other than those received through NI Direct; blockages; collapsed sewers / manholes;
- smells from sewage treatment works / pumping stations; and flies from sewage treatment works.

NIW have created a series of CMS logging codes, within the RapidXtra system, to cover these issues. All telephone contacts logged by the agent using one of these codes will be included in the reported volume of telephone complaints. In addition, where a customer expresses dissatisfaction during their call, the agent has the ability to select the complaint flag which will identify the log for inclusion in the reported figures.

NIW excludes from the reported figures, those telephone complaints which are:

- Anonymous;
- About the activities of other utilities;
- Received through NI Direct Incident Line; and
- Received on telephone lines other than principle advertised customer contact points (i.e. all other business lines).

Complaints to/about contractors

Telephone complaints to contractors or other agents about work being undertaken on behalf of NIW are reported only where NIW are informed. Complaints about contractors or other agents are also reported, even if the complaint is referred to the contractor to resolve.

Telephony Structure:

Telephone Providers Network

The supplier during the reporting year transferred from BT to Virgin. From 1st April 2022 to the 31st August 2022 all calls were directed through the Cirrus platform before hitting the relevant location for Warm Voice contacts, HVCH or IVR. From the 1st September 2022 to date NIW transferred over to the Avaya platform which is NIW's corporate telephony platform. The data for the first six months was recorded by Cirrus and used for the contacts reporting. Since the changeover to Avaya calls are now recorded on this platform and used for reporting.

High Volume Call Handling (HVCH) System

The HVCH system is aimed at ensuring NIW can handle large volume of calls during periods where calls can increase very quickly e.g. Major Incidents, heavy rainfall incidents, etc. This ensures that all calls are logged and customers given specific information resulting in higher levels of customer satisfaction during service interruptions. The HVCH system will recognise customers using the telephone number we hold on their customer record or it can use Voice Recognition to allow customers to speak their Post Code.

Calls will be delivered to HVCH direct from the Avaya platform menu structure when a caller selects option '4'. Calls delivered to this campaign will be offered to agents first in Avaya CMS which is the replacement to Call Media on the Avaya Platform, however if an agent is not available the call will automatically divert to the HVCH Platform. The divert is controlled by the Virgin intelligent network, calls will divert on busy tone, route failure and no reply.

Since September 2020, 'No Water' calls have been handled on an 'HVCH First' basis, meaning any customer who calls in regarding a No Water issue will be directed to the HVCH service rather than a CRC agent, with the exception of customers on the Customer Care Register (CCR). All other calls options are set to 'Agent First' mode.

As each caller hangs up in the HVCH application, a Call Data Record (CDR) is created which details the caller's activity during the call. A portion of the CDR is passed to NIW in the customer contact file for the creation of work requests through Rapid to Ellipse.

IVR Cirrus

The IVR platform is not set to Agent first which means all calls will hit the Virgin switch first and then be directed to the IVR platform. If completed successfully on the IVR, the call will never hit the Avaya switch and will not be reported in Avaya CMS. However, the Billing & Debt line and Septic Tank IVR are linked to the Billing Enquiry and Waterline PACC lines and will be reported using the CIRRUS Voice platform.

IVR is a technology that automates and simplifies interactions with incoming customer calls. In doing this, IVR provides a conversation, which can be either pre-recorded or generated audio that assists, directs, and/or guides customers automatically without the need to talk to an agent. Within these interactions customers are able to communicate by using either the dial pad or speech recognition.

This system was also used to report total calls figure when agents were advised to work from home.

Avaya CMS

During 2022/23 with the transfer over to the Avaya Platform, Call Media was also replaced with Avaya CMS. This was a like for like replacement system. Calls received on all other PACC lines and the majority of calls received on Waterline are delivered to the Avaya CMS system for allocation to an appropriately skilled agent. If there is more than one Customer Service Agent available, the system allocates the call to the one who has been available the longest period of time.

If no skilled agent is available immediately then the call will be queued until a skilled agent becomes available. The Avaya CMS telephony system provides an internal queuing system where callers will hear a ring tone and then a comfort message and music on hold.

The use of Avaya CMSs skill based routing ensures that incoming calls are distributed in a

way that will ensure a quality response to the customer.

Call Recording

All calls received in the call centre via Avaya CMS are recorded via Verint WFO call recording software. This replaces the NICE call recording software. This software records the time of the call and the telephone number that called the centre if available.

Call Handling:

Practices and Procedures

All calls received are managed by either HVCH call routing system or Avaya CMS and routed directly to an appropriately skilled agent based on the first available call handler.

Wherever possible, an agent will deal and action a customer's enquiry at point of contact. Where this is not possible, a message will be raised on the system for further investigation or where appropriate the customer will be transferred.

All enquires are logged on RapidXtra automatically by HVCH or manually via an agent, covering the reason for the contact (contact type) and the advice given or action taken. This is the case whether or not further work is required ensuring all calls are recorded, even if they remain open for further action.

Calls which require further action are logged on RapidXtra and work flowed to teams or individuals as required or passed to Ellipse for issue to mobile work management operational teams. This includes instances where further actions or NIW investigation is required in order to provide a full response to the customer.

Transfers between PACC Points

Agents are multi-skilled, so transfers are not generally made. Transferred calls are reported as one call.

Direct Measurement/Interpolation/Extrapolation

NIW measures statistics for all telephone calls received on PACC points which are delivered directly to the Avaya CMS telephony system and to the HVCH system. Sampling, interpolation or extrapolation is not used in compiling totals.

Messaging:

Use and activation of IVRs (Interactive Voice Response)

During business as usual an introductory message is set up and assigned to each queue, e.g. Billing Enquires Line. The message greets the customer and thanks them for calling the relevant number. It explains that an agent will be with them shortly and to note that calls are recorded to help provide quality assurance and training.

If a customer telephones out of hours, the customer will receive an out of hour's message. In the event of disaster recovery and building evacuation, a recorded message is activated which explains to customers that calls cannot be answered at the moment, please call back later.

As noted above, the Virgin network IVR tool is now being utilised on Waterline to direct

customers calling in relation to Trouble Calls, Septic Tank requests and other operational issues. This allows NIW to transfer Trouble Calls to the HVCH system in situations where calls exceed the volume of agents available in the CRC.

As noted above, the CIRRUS Voice IVR Platform is now being utilised to automate and simplify interactions with particular call types from incoming customer calls. The IVR provides a conversation, which can be either pre-recorded or generated audio that assists, directs, and/or guides customers automatically without the need to talk to an agent.

Use and activation of message manager systems

No message manager systems were used during the reporting year.

Use and activation of answering machines

Answering machines were not used during the reporting year.

Company Systems:

Telephony

Systems comprise of a suite of Avaya products and Avaya CMS. The Avaya switch is tightly integrated with the Avaya CMS which provides Computer Telephony Integration (CTI), ACD and outbound dialler functionality through three main components:

- Avaya S8710 providing core telephony switching
- Avaya CMS software providing ACD, CTI and dialler functionality
- Call Recording through Verint WFO; and
- High Volume Call Answering (HVCH), hosted service provided by Twenty First Century Communications.

Calls that arrive at the Avaya switch are routed by the Avaya CMS to appropriately skilled agents via softphones.

Location

All systems are facilitated by two servers, one located in Westland and one in BT Belfast. There is currently a 240 line capacity dedicated inbound calls from NIW customers, 30 dedicated lines for outbound calls and 30 dedicated lines ring-fenced for priority lines e.g. ER Hotline, Emergency Services, etc.). The scale of the current capacity was implemented in preparation for domestic billing which was deferred in April 2007.

Software

Software comprises of Avaya CMS, the integral reporting suite supplied with Verint WFO call recording.

Other Issues:

Text Relay Service and Text Phone

NIW has provided for a Text Relay and Textphone service to support customers with hearing difficulties.

Text Relay Service is a third-party service whereby the customer rings a Text Relay operator, who in turn contacts the Customer Relations Centre via the normal customer line (Waterline/Leakline/Billing, etc.) on behalf of the customer. This is recorded as a call

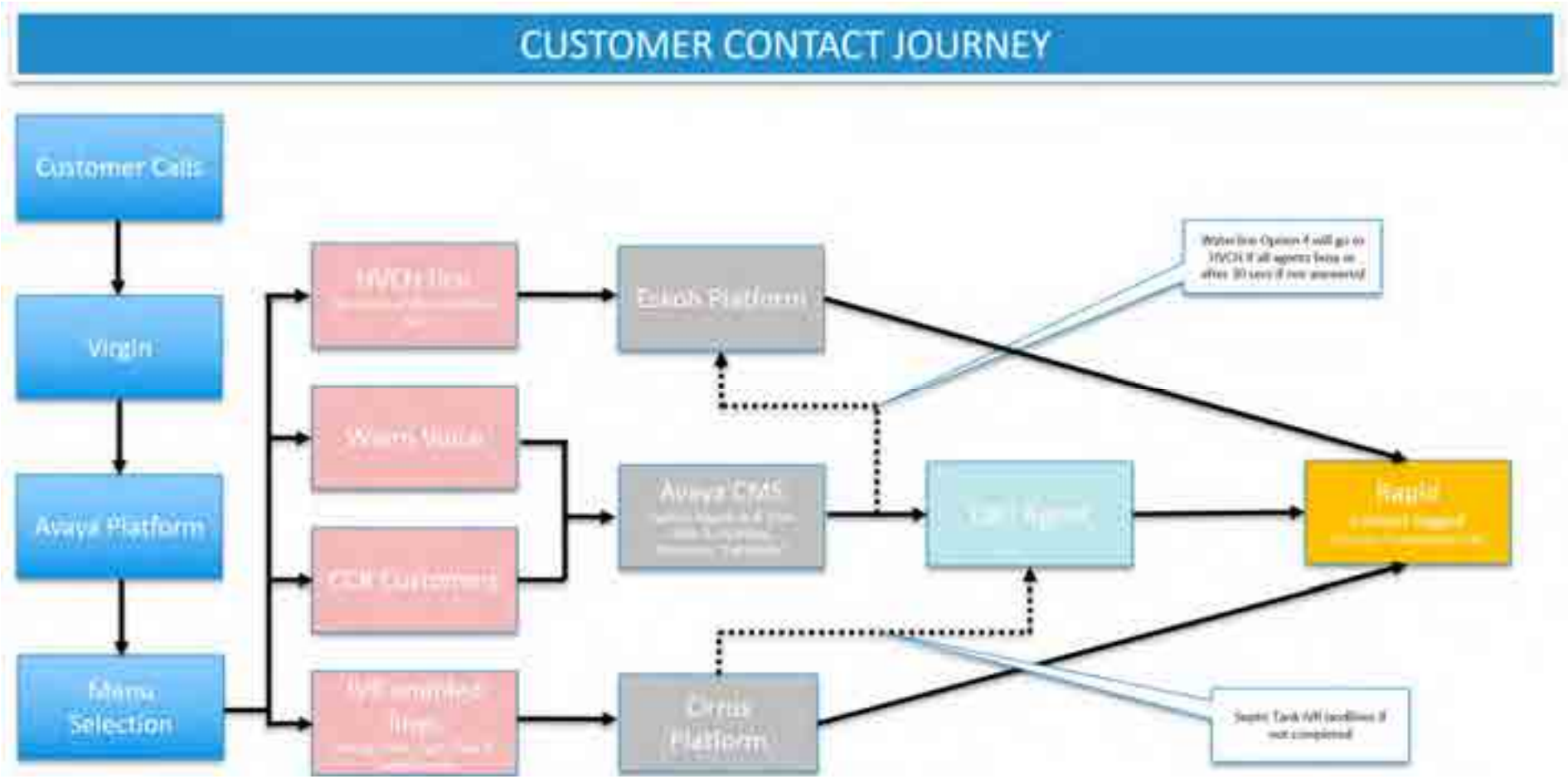
received on the appropriate line.

Rejected Calls

During the reported year calls currently rejected for any of the following reasons are not included in total calls received:

- The time being out of working hours
- The queue is too full and cannot accept any more tasks. Each queue holds 500 calls at any one time.
- The task queued for the 'Max Queue Time' and was returned to the connector.

Appendix 1





Annual Information Return 2023

Section 4

Customer Research Appendix

Annual Information Return 2023

Customer Research Appendix

Customer Satisfaction

One of the fundamental measures concerning the level of service received by customers is their level of customer satisfaction. NI Water measures customer satisfaction through different surveys:

- Voice of the Customer (VoC)
- Omnibus Survey - Question 1 & Question 2.

Listening to our customers' views and building these into our plans is essential for us to ensure that our customers' needs are at the heart of our service delivery.

Intelligent Operations (IO) are continuously working on providing an improved customer experience. Under the auspices of the Customer Engagement Oversight Group (CEOG) and the Customer Measures/Satisfaction (CM/SAT), IO have been actively engaging with NIAUR, CCNI and DfI to develop a range of new quantitative and qualitative customer measures which are most relevant to us and our customers. These have been reflected in the new customer measures as agreed in the PC21 Final Determination.

These measures include the development of targets and methodologies more meaningful and timely customer satisfaction feedback to highlight, as close to real time as possible, those areas and activities which cause dissatisfaction for customers.

For regulatory reporting purposes in 2022/23, scores from the Voice of the Customer and the Omnibus Survey are used/reported in Table 5.

E	CUSTOMER SATISFACTION MEASURES
23	Customer advocacy measure
24	Omnibus survey question 1
25	Omnibus survey question 2

In 2018/19 NI Water introduced Voice of the Customer (VoC) in which surveys are conducted by Watermelon, an independent Customer Experience and Insight specialist.

These are near real time surveys conducted daily, with each customer being asked to complete a survey after interacting with NI Water. This provides a much greater sample size over the course of an entire year (approximately 600 surveys per month).

The objective of the surveys is to capture the views of those customers who have had dealings with the company, not only through the main contact centre but other parts of the business. On top of surveying customers who have engaged with our contact centre, an automated report has been set up to look at any operational work completed the day before via Ellipse. Once the Work Order is closed within Ellipse the data is linked to the initial contact(s) logged in Rapid to obtain the details of the customer who had the issue. This data is then passed to Watermelon who then survey that customer.

Customers are asked *"Based on your recent experience with us, how likely are you to recommend NI Water? Please respond 0 for very unlikely up to 10 for very likely"*.

The score is calculated using Net Promoter Score methodology based on results from the previous question. The survey is based on resolved contacts only in relation to all areas of the business.

NI Water achieved an overall score of 36 for the reporting year 2022/23.

Customer Advocacy Measure Monthly Score 2022/23**Omnibus Survey**

The Omnibus survey is different from VoC, in that it also includes customers who have not contacted us during the year – known as the Silent Majority. Our records show that on average 80% of our customers do not contact/need to contact us. Yet it is important to seek and understand their views regarding the level of service they are receiving from NI Water, to determine if there is any correlation between their views and those customers that do contact us.

Ipsos MORI conducted quantitative research on behalf of NI Water, between 13th February to 3rd March 2023, with the standard Questions 1 & 2 included in a series of questions being asked of domestic and non-domestic customers.

- 1600 residential customers adults aged 16+ were engaged via Ipsos MORI's online KnowledgePanel. We received a higher response than last year with 985 responses (885 in 2021/22) received via the KnowledgePanel. As with previous years scores are weighted to be representative of the NI population in terms of age, gender, social class and geographical location.
- 502 business customers were surveyed by means of Computer Assisted Telephone Interviewing (CATI), conducted by telephone from the Ipsos MORI Telephone Research Centre. As with previous years quotas are controlled by location, industry sector and size. For consistency with previous research, non-domestic customers were categorised as services or manufacturing.

A summary of the key findings is as follows:

- Findings from the research suggest strong levels of endorsement of water services in Northern Ireland, with
 - 72% (81% in 2021/22) of domestic customers and 77% (76% in 2021/22) non-domestic customers indicating that they are satisfied with the services they receive from NI Water.
 - Of the domestic customers, significantly more of those aged 25-34 (78%) agree with the statement. "I am happy with the service I receive from NI Water."

- Of the non-domestic/business customers, more than three quarters (77%) agree with the statement "I am satisfied with the service I receive from NI Water". Significantly more businesses with >26 employees (83%) strongly agree with this statement.
- Overall, the average level of satisfaction, weighted over both customer bases, is 73.7, as follows:

	Sample Size	Score	Total
Domestic	985	72	70,920
Non-domestic	502	77	38,654
Total	1487		109,574
Average			73.7

- In terms of Advocacy:
 - 62% of domestic customers rated NI Water with a score of 7 or more out of 10 in terms of likelihood to recommend. The average score across the sample was 7.43. Those in urban areas and Protestants were more likely to recommend NI Water.
 - 68% of non-domestic customers rated NI Water with a score of 7 or more out of 10 in terms of likelihood to recommend. The average score across the sample was 7.55, which is slightly higher than domestic advocacy.

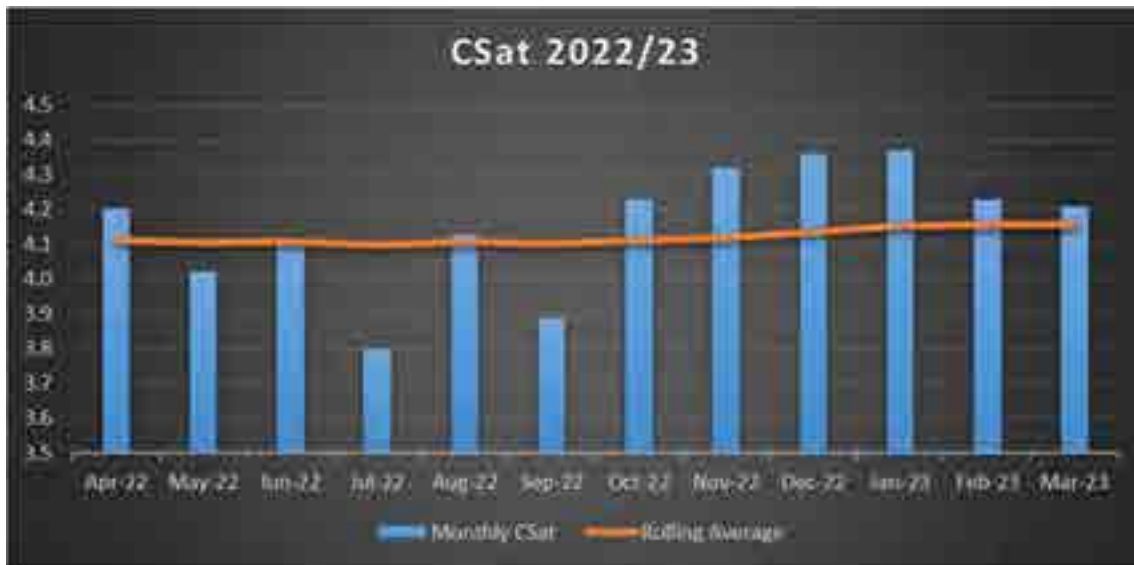
Service Incentive Mechanism (SIM)

SIM is divided 50% quantitative and 50% qualitative penalties. Since 2019/20 the Voice of the Customer service provided by the third party, Watermelon has been used to facilitate the Qualitative element. All customers which have interacted with NI Water in any capacity are asked to complete a survey which provided a much greater sample size of close to 600 surveys per month. This larger, ongoing sample allowed for a more reliable reflection of NI Water's customer metrics, while also allowing NI Water to monitor ongoing trends.

As part of the survey, customers are asked *"taking everything into account, how satisfied were you with the way NI Water handled this matter? Remember, that 0 is very dissatisfied through to 10 for very satisfied"*

NI Water supplies contact details (telephone number, date of initial contact, CMS code detailing the type of contact) to Watermelon each day via Secure File Transfer Protocol, with Watermelon returning any completed surveys the same way as soon as they are completed. This information is then stored in NI Water's encrypted data warehouse.

The scores given in the aforementioned question are normalised to a 5 point scale and are used to drive the qualitative, overall satisfaction component of the SIM Score.

Customer Satisfaction Monthly Score 2022/23**PC21 Customer Research**

In preparation for the PC21 business plan, NI Water appointed Ipsos MORI as its strategic customer research partner to undertake all research surveys over the next 5 years (from January 2019 to March 2024). This covers the PC21 main and interim customer research, Omnibus surveys and further annual support.

Ipsos MORI completed the PC21 Customer Research under the guidance and monitoring of CEOG – Consumer Engagement Oversight Group – incorporating representatives from CCNI, DfI, NI Water and NIAUR.

The final PC21 Customer Research was completed in Winter 2019/20 and findings included in the PC21 Business Plan.