

Dwr Cymru Welsh Water



June Return 2011

Reporter's Report

Public Domain Version

June 2011



**Report by S Bentley, Reporter, on Dwr Cymru Welsh Water's June Return
Public Domain Version**

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Introduction

Mr. S Bentley, a Senior Associate of Black & Veatch is the appointed Independent Reporter for Dwr Cymru Welsh Water. This report has been prepared by a Reporter's team under Mr Bentley's direction, composed of senior staff and associates of Black & Veatch.

The team has studied the June 2011 Return as prepared by Dwr Cymru Welsh Water, and has followed a number of audit trails to establish the sources of information contained within that Return to assess its adequacy and accuracy.

As instructed by Ofwat, our audit was confined to Tables 1 – 4, 5 (lines 6 – 12 & 17), 6, 6b, 7 – 17f, 21 – 22a, 25abc, 32 - 38 and 42. The remaining tables and lines are to be audited by others.

This Reporter's Report on the June Return 2011 for Dwr Cymru Welsh Water includes the following:

- An explanation of our approach to exception reporting and materiality
- Our commentary on the company's Board Overview
- Commentary on serviceability and action plans
- An update on the Water Resources Management Plan
- Exception reports on those tables where there are material changes
- Brief summary reports on the remaining tables within our remit

This public domain version of our report excludes our commentary on Tables 35b, 36b, 37 and 38

Exception Reporting

For JR11, the Reporter's report is required on an exception basis. There are no company-specific reporting requirements for JR11 and Reporters' Guidance has been extensively revised. The Reporter is required to report where there has been a material change in methodology, data, systems, assumptions or data trend and it is the Reporter's responsibility to determine which issues are material and to direct Ofwat to them.

In carrying out our work this year we have:

- Reviewed all areas of the June Return where we are responsible for reporting, to confirm that it has been prepared in accordance with the Reporting Requirements and company methodologies and that the information reported is consistent with the base data, within the accuracy limits implied by confidence grades.
- Identified areas where there is a material change in methodology or data which justifies an exception report.

As a result of these requirements, the extent of audit work required was similar to previous years (allowing for table areas which are no longer required to be audited). We have reported as follows:

- Where material changes have taken place we have included an exception report, reporting in full on the table or line, using a format similar to that used in our previous reports on the June Return
- Where no material change has taken place we have included in this report a brief summary report which confirms that we have audited the relevant table or line and that there were no material exceptions to report.

Materiality

Reporter Guidance requires the Reporter to decide which issues or changes are material. To do this we have applied judgement, but generally this would be where any of the following apply:

- The methodology, data sources, systems and processes used to produce the data are not in accordance with the company's stated procedures or Reporting Requirements
- There has been a significant change to the data sources, methodology, systems or processes which leads to a reduction in confidence in or the accuracy of the reported data
- There has been a significant change to the data sources, methodology, systems or processes which leads to a change in the reported numbers of more than about 10% (unless annual variability is normal)
- There has been a change in the base data which leads to a change in the reported numbers of more than about 10% (unless annual variability is normal)

The Company's Board Overview

Introduction

This commentary covers the Board Overview and also includes other issues upon which we have been asked to comment by Ofwat. The commentary includes:

- The consistency of the Board Overview with the numerical data drawn from the June Return tables.
- The company's serviceability assessment. This section includes updates on the Coliform Action Plan and Sewer Flooding – Other Causes Action Plan, within the relevant serviceability heading.
- An update on progress on a revised Water Resources Management Plan.

The key points

1. Where data contained in the Board Overview are directly comparable with data in the June Return tables, they are consistent.
2. Sample checks showed quality data contained in the Board Overview to be consistent with that in quality regulators' reports.
3. We have reviewed serviceability components highlighted by Ofwat, components identified as being of concern in our report on JR10 and components which the company assesses as 'Marginal' for JR11. As a result of these checks we confirm our agreement with the company's serviceability assessments for the areas checked.
4. We have reviewed the company's overall serviceability assessment and confirm that we agree with their assessment of 'Stable' for water and sewerage infrastructure and non-infrastructure.
5. The company has made progress on the Coliform Action Plan and performance for JR11 remains near the Reference Level. The last of the related investment projects is forecast to be completed in December 2014.
6. The company has made progress on its Sewer Flooding – Other Causes Action Plan. Performance on internal flooding - other causes has improved and is now close to the Reference Level. The fact that the bulk of flooding - other cause events

are found as a result of blockages on small diameter sewers, that of these around 70% cannot be classified as 'repeat events' and that rainfall patterns appear to have a significant impact, means that DCWW may remain at risk of missing its target in the future.

7. The company plans to update its Water Resources Management Plan (WRMP) to take account of the Environment Agency Wales' (EAW) desire for sustainability reductions in abstractions, but no completion date is available.

General

The company has presented its Board Overview in a new format for JR11, containing significantly more information than in previous years. The greater part of the Board Overview consists of the *Book of Metrics*, which shows performance charts and commentary for 53 parameters, presented in the format used in the company's Monthly Management Report (MMR), which is discussed at monthly Board and QEC meetings.

We have read the commentaries in the Board Overview. We do not comment on June Return measures now associated with the SIM or on financial measures, which are outside our remit. Where we do have knowledge we believe that the comments in the Board Overview are consistent with the June Return and are also consistent with the information arising from our audits.

The Board Overview is drafted by the Regulation Department who produce it while receiving and analysing tabular information and detailed narratives from table owners. We believe that the company's method of corporate governance means that the Board Overview is well founded and based, insofar as it relies on the information in the main June Return.

We have reviewed the information provided in the company's *Book of Metrics* but have not reviewed every item of data stated in DCWW's narrative. Of the 53 parameters reported, 22 relate to data given in the June Return tables or otherwise covered by our audits and we confirm that these data are consistent.

In addition we compared data given in the Board Overview with that contained in quality regulators' reports for a sample of 11 of the 23 further quality parameters and confirmed that they were consistent. The company has a documented internal process for the production of the data contained in the Book of Metrics for the MMR and is working towards accommodating this in its ISO 9001 accreditation. Currently all of the MMR data are held in a single spreadsheet and each data table has an identified data owner who is responsible for the accuracy of the data and for updating it on a monthly basis on the

spreadsheet. An audit trail exists linking each item of data to the individual who provided it. Each month a draft of the MMR report is produced and formally reviewed at a review meeting chaired by the Managing Director, prior to the presentation of the report to QEC. Currently the source data are held in an Excel spreadsheet and are manually transferred to an Apple Mac package which produces the MMR. The company plans to move to a new publishing platform for the report which will allow automatic transfer of the data and eliminate manual transfer, which allows some small potential for human error.

As a result of these checks, we are satisfied that the data stated in the Board Overview are consistent with data in the June Return Tables and with data provided by quality regulators.

Our comments below follow the headings given in the Board Overview.

Book of Metrics

Safe Drinking Water, DWI and EAW

For JR11, the Book of Metrics contains significantly more performance information than in previous years. This includes numerous results provided by DWI and EAW. We have audited these data on a 50% sample basis and confirmed that, for the criteria examined, the data reported in the Board Overview were consistent with those in quality regulators' reports. We have included comments on water treatment works bacteriological compliance, iron compliance and sewage works compliance against numerical consents in our commentary on serviceability below.

Environment and Sanitation

We have audited water resources during our audits of Table 10 (Water Delivered), Tables 10a (Security of Supply Index) and Tables 10b (EA Water Balance). In each case we carried out a full audit and there were no significant changes to methodology systems and processes. The company failed its leakage target for the report year. It attributes this to the severe winters of 2009 - 10 (which left it with a backlog of work to recover) and 2010 - 11, which resulted in a heavy workload of finding and repairing leaks. The company was not alone among UK water companies in this position during the recent winter. As leakage has risen and the company has missed its leakage target we have included an exception report in our commentary on Table 10.

DCWW is reporting that this year it has the same two zones in deficit at its planned levels of service as last year (SOSI = 99). For the critical period it is also reporting one zone in deficit (SOSI = 99). Together these zones represent approximately 3.7% of the company's water available for use. The company is in the process of producing a revised draft Water

Resources Management Plan (WRMP), which is expected to be complete in the near future. Figures quoted are based on the draft WRMP.

We have audited greenhouse gas accounting during our audits of Table 42. This table was previously contained in the Board Overview where we commented in detail for our report on JR10. For JR10 we carried out a full audit, there were no significant changes to methodology systems and processes and we decided that no exception report was warranted. We noted further improvements in both process and data for the compilation of Table 42.

We have included comments on sewer flooding – other causes in our commentary on serviceability below.

Customer Services

We have audited customer service measures not included in the SIM measures as part of our audits of Table 4 (DG6 - Response to Billing Contacts), Table 5 (DG8 – Bills for Metered Customers) and Table 6 (Customer Service Standards – GSS Payments). In each case we carried out a full audit, there were no significant changes to methodology systems and processes and we decided that no exception report was warranted. Performance against the DG6 and DG8 measures remains very good.

SIM

We have not audited June Return tables relevant to SIM measures, as these will be audited by others.

Looking After Our Assets

We have included comments on mains bursts and water and sewerage non-infrastructure unplanned maintenance in our commentary on serviceability below.

Outputs

Net expenditure was broadly in line with that expected at the Final Determination. Within the total expenditure on water non-infrastructure was up, due mainly to an increased focus on water treatment works expenditure linked to the Coliform Action Plan, and expenditure on water main renewal and rehabilitation was down, with 44 km delivered in comparison with a target of 115 km. The company intends to recover this deficit during 2011 – 12.

Finance

We are not required to comment on June Return measures included in the tables covering Regulatory Accounts as these have been audited by others.

Board Statement

We have reviewed, and concur with, the statements made in the Board Statement concerning policies and procedures, implementation and internal review, and external review and Board engagement.

Serviceability

Introduction

For JR11 we have been instructed by Ofwat that audit of the Serviceability Toolkit is not required and that we should focus on the areas of concern raised last year and any other issues that have arisen during the report year that give concern that company performance is less than stable.

We report below on areas highlighted by Ofwat in its letter dated 6th September 2010 to DCWW's Director of Regulation. This confirmed a serviceability assessment of 'Stable' for asset categories Water Infrastructure, Sewerage Infrastructure and Sewerage Non-infrastructure, but 'Marginal' for Water Non-infrastructure as at JR10. We also report on categories which were identified as being of concern in our report on JR10 and categories which the company assesses as 'Marginal' for JR11.

We have not audited the assessment of serviceability by the company, using the Serviceability Toolkit. We did however review the serviceability trend graphs in relation to the assessment guidelines, the Reference Levels and the company targets to confirm that the company's assessment appeared reasonable.

We also reviewed progress against action plans for those areas subject to such a plan.

DCWW's General Approach to Managing Its Serviceability

Following the Final Determination DCWW adopted a more proactive approach to managing its serviceability to ensure that it either maintained its current Reference Levels of serviceability or, where appropriate, met its target serviceability levels by 2014 - 15. DCWW has set up a Monthly Capital Meeting (MCM) which covers both clean and waste water business unit serviceability. The MCM meets monthly on a formal basis. In addition the MCM holds a formal, annual review of serviceability. Data considered include current performance against serviceability measures, Ofwat Reference Levels, upper and lower bounds and the performance level which was expected at the time of the Final Determination.

The MCM is responsible for developing robust asset strategies, managing asset risk and for ensuring that all serviceability targets are met. The group also manages the allocation of the capital budget and approves changes to the capital programme. The MCM comprises senior DCWW staff including the Managing Director, Operations Director, Finance Director, Head of Waste Water Services, Head of Potable Water Services, Head of Capital Delivery and Engineering, Head of Asset Strategy and Planning, Head of

Management Accounting and Head of Developer Services. It is chaired by the Planning and Regulation Director.

Detailed asset planning is undertaken at a local level where asset management teams undertake performance reviews, impact analyses and root-cause analyses, quantify risks and develop interventions. This work is overseen by members of the MCM. There are Asset Managers for both water and wastewater assets and the company has a headquarters team of four individuals to monitor serviceability, identify trends and act as a catalyst for remedial action

This team undertakes monthly serviceability indicator reviews, using Ofwat's Serviceability Tool, develops serviceability action plans and, where relevant, extends the serviceability review to individual sites to identify those sites at most risk. Results are summarised graphically to show DCWW's current position with respect to the Reference Level and upper and lower bounds, the serviceability target in 2014 - 15, how serviceability is projected to improve as a result of the currently proposed capital programme and any shortfall that will have to be met either by operational improvements or additional capital expenditure. DCWW has undertaken some comparisons of the approaches to capital maintenance used in its different operational areas and has identified differences and where there is best practice. The company has identified some operational improvements that should help it to meet its serviceability targets.

The company aims to demonstrate stable serviceability by maintaining performance between the upper and lower bounds and providing evidence of active management of performance. It is the company's view that bringing operational activities back in house has resulted in an improved focus on serviceability issues.

Based on our discussions with DCWW and an examination of its supporting documents we have concluded that DCWW manages its serviceability in a proactive and coherent manner, has identified high risk areas and is focussing its attention on them. The development of action plans is illustrative of this approach.

DCWW has identified that its capital expenditure plans will not be sufficient to meet its mandatory serviceability targets in all cases and that operational and planning improvements will also be required. These are considered in the first place to effect rapid changes where possible and as a potential alternative or supplement to investment.

We have reviewed serviceability areas which are of particular interest and our conclusions are summarised below. In making these comparisons we compared the numbers given in the company's serviceability assessments with the corresponding number in the June Return tables. Where a direct comparison was possible, the numbers were found to match. For unplanned maintenance, different criteria are used, as explained in the commentary on the relevant areas below.

Water Treatment Works Bacteriological Compliance and Coliform Action Plan

At JR07 the company's performance on WTW coliform compliance was better than the Ofwat lower performance bound, but this deteriorated sharply by JR08, causing concern over the company's water non-infrastructure serviceability due to a number of coliform failures and cryptosporidium outbreaks in the company's WTWs, many of which are located in North Wales. This resulted in a number of notices issued by DWI, and Ofwat requiring the company to submit a Coliform Action Plan for completion by 2012 so that stable serviceability could be demonstrated in the results for the 2012 - 13 financial year. The company was very concerned by the failures and agreed a quality programme for AMP5 with the DWI and Ofwat. At those WTWs where the company's proposals were not supported as a quality programme, DCWW planned a programme of major capital maintenance. These programmes have been accelerated and the improvement of WTW performance was the company's main focus over the years 2008 - 9 and 2009 - 10.

During JR10, DCWW improved 3 works that had experienced significant failures in 2007 and 2008. As a result its coliform failures in 2009 - 10 returned to their Reference Level. DCWW submitted an action plan to Ofwat; updated its disinfection strategy and reviewed its works against the strategy with a view to making all works compliant by 2014 - 15.

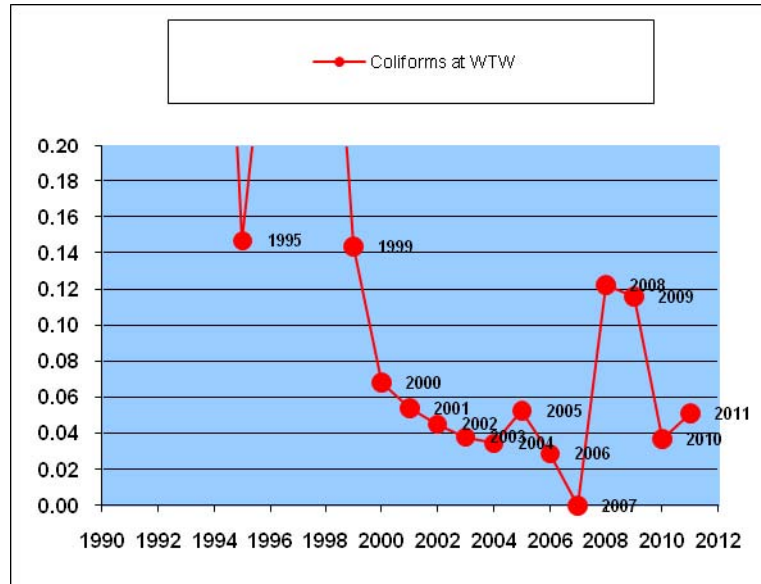
As part of its action plan the company analysed the coliform failures which had occurred and carried out root cause analysis to determine actions required on specific works. This resulted in a change in disinfection policy with a review of the type and location of chlorination and a move to UV disinfection at vulnerable works. Chlorine contact times were reviewed at WTWs to determine actual contact times with reference to design standards. This work included hydraulic modelling to identify possible short-circuiting. As a result a number of operational changes were made and investment was also proposed at a number of further sites. Improvements were completed at one (Eithin Fynydd WTW) during 2010 - 11.

In conjunction, for a number of sites assessed as being vulnerable, UV disinfection was installed. These included vulnerable groundwater sites where there was no other barrier stage and surface water sites where UV was generally installed as a preliminary measure to provide a rapid improvement in protection pending, and as a supplement to, full treatment based on full coagulation. We reported in detail on the Coliform Action Plan in our commentary on JR10 during the previous Reporter contract. The table below shows progress on WTWs where improvement works are, or were, planned.

Site	Proposal	Completion date
Pontsticill	A number of schemes ongoing to improve coagulation process. Proposal to cover second stage filters. Feasibility on additional works ongoing.	September 2013
Alwen	Disinfection process overhauled and improved to provide required contact time. New filtration stage in progress. (DWI Notice)	August 2011
LLyn Conwy	Automation and upgrade to processes (DWI Notice)	March 2013
Buckholt	Scheme within Business Plan to install UV in yr 3 – to be accelerated to ensure barrier in place for summer.	June 2011
Alaw	Filter refurbishment currently ongoing, additional contact time with additional storage to be accelerated, wash-water treatment upgraded (DWI Notice)	December 2014
Cilfor	UV installed and operational, new coagulation stage, new filters (DWI Notice)	September 2011
Eithin Fynydd	New coagulation stage, refurbishment and new filters (DWI notice)	March 2011

In its letter dated 10th September 2010, Ofwat noted that performance was on track to improve back towards a 'Stable' assessment, but that this could not be confirmed until continued improved performance was demonstrated at JR11.

Among 11764 samples taken in 2010 - 11 there were 6 failures for coliforms, giving a percentage non-compliance of 0.05%. This is a rise compared with JR10 performance of 0.04% and is above the Reference Level. The company's internal assessment of serviceability for bacteriological compliance is 'Stable', based on two years of performance at or near the Reference Level. We have reviewed, but not audited, the company's performance trend graph (shown below) and support this assessment. Further information is given in our commentary on Table 11a.



Water Treatment Works Coliforms - % Non-compliance

Water Non-infrastructure Unplanned Maintenance

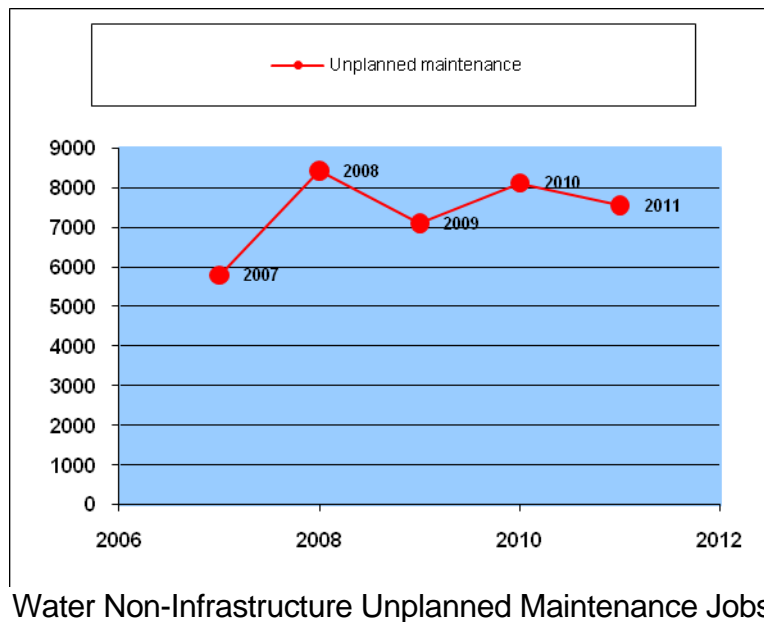
In its letter dated 10th September 2010, Ofwat noted that the company reported performance against a previous reporting methodology and required that this should continue to allow performance to be monitored against outputs set in the Final Determination, before a review in 2012. At 10847, the number of incidents reported for JR11 has reduced significantly from JR10 (12698), but remains above the Reference Level and company target.

For water non-infrastructure ME&I assets the company uses SAP for scheduling and reporting all jobs. Work orders in SAP cover all items of plant, machinery and instrumentation. Unplanned work is assessed from completed work orders associated with asset failures of any type. As such they do not include routine inspections. Work which is planned at short notice (“planned/reactive”) for assets that are assessed as exhibiting signs of imminent failure (based on inspection or condition monitoring) is considered to be planned. In this respect, there has been no change from JR10 and prior years. We therefore confirm that the data collected is a count of all the unplanned jobs completed, as required by the Reporting Requirements.

DCWW has continued to improve both its understanding and the make-up of the number of unplanned maintenance work orders and its derivation, through improved reporting by a new hard-wired BI report from SAP, as recommended by the Reporter in JR10. The new system has highlighted that typically 10% of SAP descriptors do not enable work to be

correctly identified or allocated without manual recourse to the relevant Operations staff. The company is working to reduce this percentage.

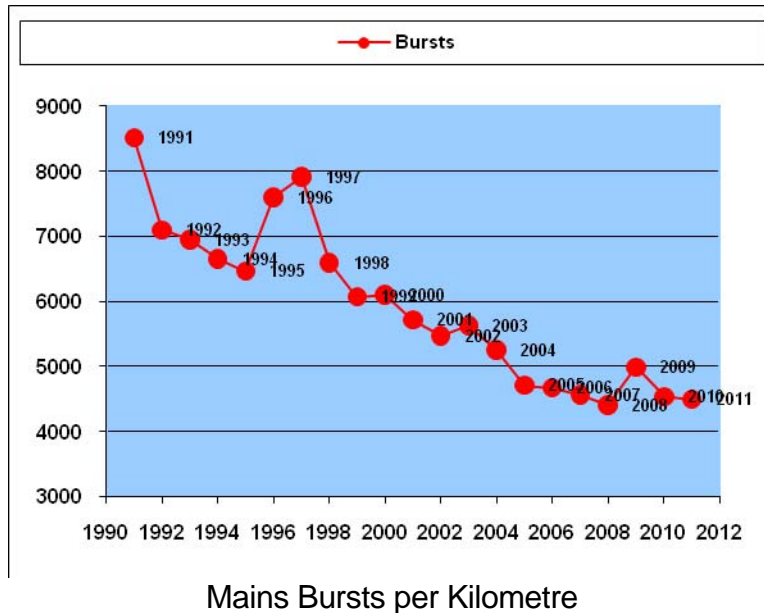
These improved reporting procedures justify an improved confidence grade, which we support. There is no clear trend in numbers reported over the last four years. The company's internal assessment of serviceability is 'Stable'. We have reviewed, but not audited, the company's performance trend graph (shown below) and support this assessment. It should be noted that the trend graph excludes jobs with the SAP code 'ZM03' (reactive capex – low value) as these were also excluded from the serviceability measure at the time of the Final Determination. The numbers indicated on the chart are therefore lower than those given in Table 11a. Further information is given in our commentary on Table 11a.



Mains Bursts

In our report for JR09 we noted that the trend for improvement in the number of mains bursts per kilometre since 2003 - 4 had been halted owing to cold weather. The winter of 2009 - 10 was harsh, but the number of bursts was brought down close to the Reference Level by JR10. 2010 - 11 was also notable for periods of intense cold during November and December, but the number of bursts for the year (4496) remained at a level similar to that reported at JR10 (4537). This performance remains marginally above the company target and Reference Level but well below the upper performance bound. The company's

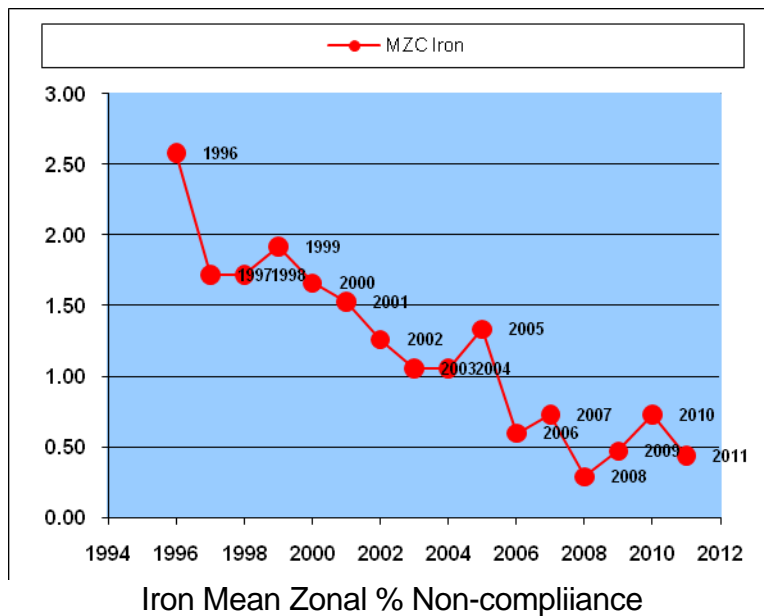
internal assessment of serviceability is 'Stable'. We have reviewed, but not audited, the company's performance trend graph (shown below) and support this assessment as this is the second year of performance close to the Reference Level.



Iron Mean Zonal Compliance

Iron mean zonal non-compliance rose from a low at JR07 to 0.74% at JR10 and was then outside the upper control limit. Following this deterioration in performance, the company instituted an internal action plan to identify problem zones and causes, reviewed the reporting of results to ensure that this was accurate, identified operational actions (such as stopping mains flushing in problem zones) to reduce the problem and targeted investment to reduce iron discolouration. For JR11, performance has improved to 0.44%, below the company target, but above the Reference Level.

The company has around 80 zones of very different size and points out that this makes it vulnerable to single failures in small zones which affect the serviceability rating but may affect very few customers. DCWW attributes the improvement in performance partly to the completion of the S19 mains rehabilitation programme. Its internal assessment of serviceability remains at 'Marginal' until sustained improvement can be demonstrated. We have reviewed, but not audited, the company's performance trend graph and support this assessment as this is the first year of improved performance close to the Reference Level. The company expects performance to remain at or around the current level due to the increased focus on this measure.



Sewer Flooding – Other Causes: Serviceability and Action Plan

In its letter dated 10th September 2010, Ofwat noted an adverse trend and a deteriorating serviceability assessment for this indicator, saying that continuing poor performance was likely to lead to an assessment of ‘Marginal’ for this sub-service for JR11. We also identified this indicator as being of concern in our report on JR10.

Flooding - other causes was on an upward trend up to and including 2009 - 10. During 2010 the company devised a formal Action Plan to improve performance on this measure. We reported on this Action Plan in our commentary on JR10, during the previous Reporter contract. At that time the Phase 1 investigation had been completed and 21 improvement actions in the areas of asset management information, risk assessment and planning, implementation and operation, checking and corrective action, and management and review had been identified. The focus of action in this serviceability area is preventative de-silting and smaller investment projects.

Further work since then has included an analysis of flooding incidents to identify problem areas and devise remedial measures, including a programme of de-silting. The company spent £1.7m on sewer de-silting during the report year, challenging proposals for cleansing where no direct link to flooding could be demonstrated. Practice across different parts of the company’s area was reviewed to identify and consistently implement best practice. It is the company’s view that bringing operations back in house has improved focus on

serviceability measures, enables more direct 'hands-on' control of the network and has contributed to the improvement in this measure. Organisational changes included the formation of the Sewerage Serviceability Improvement Team, charged with assessing and prioritising all interventions to maximise the reduction in flooding – other causes incidents.

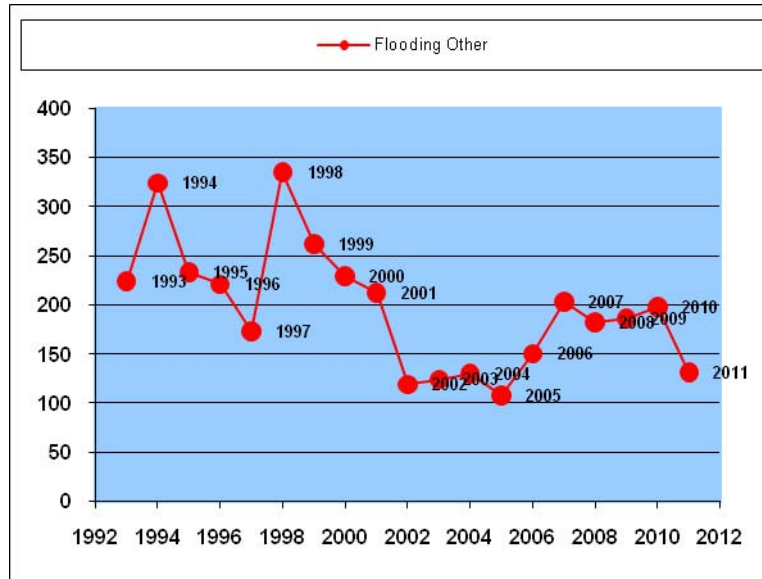
The company is using GIS-based analysis to identify flooding – other causes 'hot-spots'. This is followed by root cause analysis to identify causes and risks, which is in turn used to target operational actions and investment.

The company expects to spend £6.2m during AMP 5 to maintain stable service ('Base' expenditure). In this context, 'Stable' is defined as being based on a starting point of 120 properties per annum, a level which has not yet been reached, as the JR11 figure is 136. In addition a further £5.2m of investment is planned, to reduce flooding – other causes incidents to the target level of 100 by the end of 2014 – 15 ('Enhancement' expenditure).

Performance reported for JR11 is significantly improved, down from 198 properties at JR10 to 136 at JR11. The number of incidents is now below the internal target level of 160 and slightly above the Reference Level. The company attributes this improvement to a renewed programme of de-silting and the targeting of known problem areas. However it is likely that the dry winter was also a factor in this reduction. Most flooding - other causes incidents arise from blockages but sewer collapses and equipment failures also contribute.

The fact that the bulk of flooding - other cause events are found as a result of blockages on small diameter sewers, that of these around 70% cannot be classified as 'repeat events' and that rainfall patterns appear to have a significant impact, means that DCWW may remain at risk of missing its target in the future.

The company's internal assessment of serviceability is 'Marginal'. We have reviewed, but not audited, the company's performance trend graph (shown below) and support this assessment, as this is the first year of improved performance close to the Reference Level.

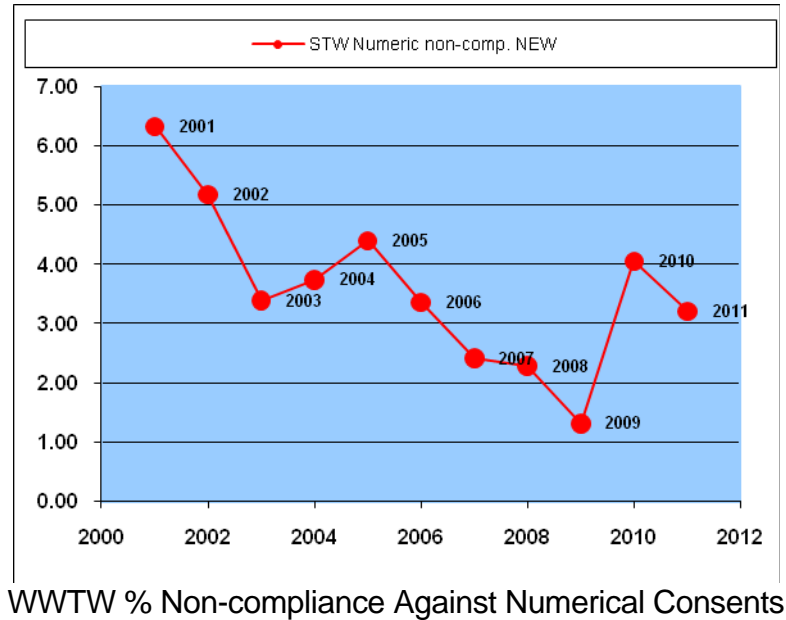


Sewer Flooding – Number of Properties Flooded - Other Causes

WWTW Performance Against Numerical Consents

In its letter dated 10th September 2010, Ofwat expressed concern at the extent of failures reported at JR10 and noted that the definition applicable from JR11 removed exclusions. With the removal of these exclusions, JR10 performance would have been well above the upper control limit. In our report on JR10 we drew attention to this area as being of concern. The company has taken a pro-active approach to managing performance against this measure, has a dedicated member of staff reviewing leading measures of performance and has taken operational steps to improve performance. This measure is very sensitive to a small number of consent failures, which can rapidly move performance outside the upper performance bound.

The percentage of WWTW exceeding numerical consents has reduced from 4.05% at JR10 to 3.24% at JR11. The value quoted in the June Return is a forecast value as EA Wales has not yet confirmed its assessment of results. JR11 performance is below the upper bound of the new measures (discounting exclusions) but above the company target and Reference Level. The company's internal assessment of serviceability is 'Marginal'. We have reviewed, but not audited, the company's performance trend graphs and support this assessment as this is the first year of improved performance close within the new performance bounds. Further information is given in our commentary on Table 16b.



Sewerage Non-infrastructure Unplanned Maintenance

In its letter dated 10th September 2010, Ofwat noted that the company reported performance against a previous reporting methodology and required that this should continue to allow performance to be monitored against outputs set in the Final Determination, before a review in 2012.

The 28681 incidents reported for JR11 have fallen from 30023 at JR10 but remain above the company target and Reference Level.

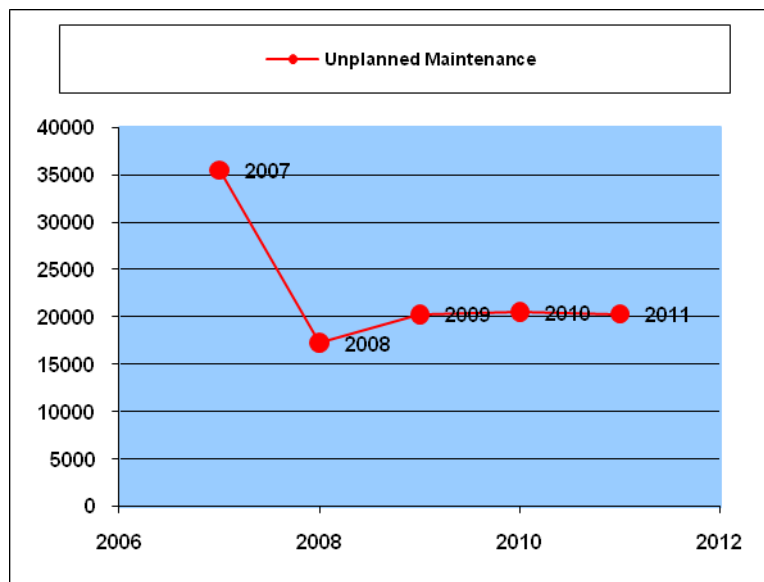
For sewerage non-infrastructure ME&I assets the company uses SAP for scheduling and reporting all jobs. Work orders in SAP cover all items of plant, machinery and instrumentation. Unplanned work is assessed from completed work orders associated with asset failures of any type. As such they do not include routine inspections. Work which is planned at short notice (“planned/reactive”) for assets that are assessed as exhibiting signs of imminent failure (based on inspection or condition monitoring) is considered to be planned. In this respect, there has been no change from JR10 and prior years. We therefore confirm that the data collected is a count of all the unplanned jobs completed, as required by the Reporting Requirements.

DCWW has continued to improve both its understanding and the make-up of the number of unplanned maintenance work orders and its derivation, through improved reporting by a new hard-wired BI report from SAP, as recommended by the Reporter in JR10. The new

system has highlighted that typically 10% of SAP descriptors do not enable work to be correctly identified or allocated without manual recourse to the relevant Operations staff. The company is working to reduce this percentage.

These improved reporting procedures justify an improved confidence grade, which we support. There is no clear trend in numbers reported over the last four years. The company's internal assessment of serviceability is 'Stable'. We have reviewed, but not audited, the company's performance trend graph (shown below) and support this assessment. It should be noted that the trend graph excludes jobs with the SAP code 'ZM03' (reactive capex – low value) as these were also excluded from the serviceability measure at the time of the Final Determination. The numbers indicated on the chart are therefore lower than those given in Table 16a. Further information is given in our commentary on Table 16a.

The company's internal assessment of serviceability is 'Stable'. We have reviewed, but not audited, the company's performance trend graphs (shown below) and support this assessment. It should be noted that the trend graph excludes jobs with the SAP code 'ZM03' – (reactive capex – low value) as these were also excluded from the serviceability measure at the time of the Final Determination. The numbers indicated on the chart are therefore lower than those given in Table 16a. Further information is given in our commentary on Table 16a.



Sewerage – Unplanned Maintenance Jobs

The Company's Overall Assessment of Serviceability

The overall assessment of serviceability is a matter of judgement, dependent on the weighting put on the various indicators. The company's overall assessment of serviceability is 'Stable' for all services. We support this assessment. Our comments on the individual services are as follows:

Water non-infrastructure

We support the company's assessment of 'Stable' for both water treatment works bacteriological compliance and water non-infrastructure unplanned maintenance for the report year and therefore believe that an overall assessment of 'Stable' is appropriate for water non-infrastructure as a whole.

Water Infrastructure

For mains bursts this is the second year of performance close to the Reference Level and we support company's internal assessment of serviceability as 'Stable'. For iron mean zonal compliance, performance has improved and is now close to the Reference Level. We support the company's internal assessment of serviceability as 'Marginal' until sustained improvement can be demonstrated, but do not believe that this affects the overall assessment of 'Stable' for this service, which we support.

Sewerage Infrastructure

For sewer flooding – other causes, there has been a significant improvement in performance and we support the company's internal assessment of serviceability as 'Marginal' as this is the first year of improved performance close to the Reference Level. We do not believe that this affects the overall assessment of 'Stable' for this service, which we support.

Sewerage Non-infrastructure

For WWTW performance against numerical measures, there has been an improvement in performance and we support the company's assessment of serviceability as 'Marginal' against the new measures as this is the first year of improved performance within the new performance bounds. For sewerage non-infrastructure unplanned maintenance we support the company's internal assessment of serviceability as 'Stable'. We do not believe that the 'Marginal' assessment for WWTW performance against new measures should affect the overall assessment of 'Stable' for this service, which we support.

Water Resources Management Plan

In March 2008 DCWW submitted its Water Resources Management Plan (WRMP) to the Environment Agency Wales (EAW). For some time DCWW had been discussing with EAW the need for sustainability reductions in the South (SEWCUS and Pembrokeshire resource zones). EAW completed an internal review last year and DCWW is now reviewing the revised EAW outputs following its review and updating its position, with a view to incorporating the reductions in a revised draft WRMP. Figures for demand and outages and assumed headroom used in the calculation of SOSI for JR11 continue to be based on the 2008 WRMP.

The company plans to update the WRMP in the near future but no completion date is available.

Exception Reports

This section includes our commentary on tables where there are material issues or material changes have taken place. For these reports we have reported in full on the table or relevant line, using a format similar to that used in our previous reports on the June Return.

Tables containing lines covered by exception reports and the brief reasons for them are:

Table	Table Title	Reason for Exception Report
2	Key Outputs: Water Service - 2	A rise in the number of supply interruptions, related to cold weather.
3a	Key Outputs: Sewerage Service – External Flooding	A rise in the number of externally flooded areas due to other causes.
10	Water Delivered	Increased leakage related to cold weather. Increased indicated supply pipe leakage.
11a	Water Service Serviceability Indicators	A changed methodology for reporting numbers of unplanned maintenance jobs.
15	Sewage Treatment	A reduction in the reported volume of sludge produced and disposed of.
16	Sewerage Service Activities	A changed methodology for reporting collapses and blockages. Reduced confidence in reported numbers of intermittent discharges.
16a	Sewerage Service Serviceability Indicators - 1	A changed methodology for reporting collapses and blockages. Potential under-reporting of equipment failures. A changed methodology for reporting numbers of unplanned maintenance jobs.
16b	Sewerage Service Serviceability Indicators – 2	The effect on the reported data of excluded sites subject to operator self-monitoring.
35	Financial Measures: Water Service – Expenditure by Purpose.	A change in the allocation of leakage expenditure from the Final Determination to JR11. A change in the methodology for calculating the opex impact of capex for WTWs.

TABLE 2 – KEY OUTPUTS: WATER SERVICE – 2

LINES 5 TO 20 - DG3 PROPERTIES AFFECTED BY SUPPLY INTERRUPTIONS**Reason For Exception Report**

This exception report has been submitted because of the significant rise in unplanned interruptions lasting more than 6 hours. These rose from 537 at JR10 to 7720 at JR11.

Introduction

Over the year DCWW replaced their operational database, Work Planning System (WPS), with the SAP Business Intelligence (BI) System. Together with the introduction of SAP BI, DCWW's network operatives have moved to mobile working with the use of toughbooks for the scheduling and recording of site activities. The migration of data from WPS to SAP BI and the structure of the system were audited for the mid-year report during visits to two depots.

During the year the company has made organisational changes which have resulted in the responsibility for recording DG3 coming under regional quality managers with direct responsibility for maintaining these registers.

The company experienced problems following the introduction of the toughbooks due to a combination of staff inexperienced in their use and un-intuitive forms. This resulted in inaccurate or incomplete information being recorded initially. A subsequent exercise was necessary in many cases of reviewing the data with the individual inspectors and their diaries to complete the entries correctly. It was this problem with SAP BI that prevented DCWW from being able to produce reports during our mid-year audit. The input forms have now been updated and staff given additional training to ensure these errors are not repeated.

Our Approach to the Audit

In undertaking the audits for DG3 a meeting was held with the operations staff and quality managers responsible for maintaining the registers. We examined procedures and printouts from the registers and reviewed the information against Ofwat's Reporting Requirements. The migration of the WPS data to the SAP BI system and the format of the new system were audited for the mid-year report.

Introduction

The key points:

1. We believe that DCWW has an effective system for correctly recording its interruptions to supply, which meets Ofwat's requirements.
2. The company measures the start of the interruption as the time when the interruption is notified at the call centre if unplanned and if planned, the time that the customer is notified on the warning card. The time for the completion of the interruption is taken as the operation of the last valve which restores the supply. This is consistent with the methodology used in previous years and has the advantage of simplicity and clarity but may underestimate when a consumers' supply is returned in major incidents.
3. The total number of unplanned interruptions has decreased in the report year but the proportion of longer interruptions increased significantly. The cold winter, and particularly the freeze/thaw event in December, has been cited as the reason for the increase in longer interruptions. Of the 7,720 interruptions over 6 hours long, 7,382 occurred in December.
4. Of the interruptions over 6 hours long, 92% resulted from six incidents. Of these six incidents five could be attributed to freezing.

Comments on Methodology

General

DCWW now uses SAP BI as its DG3 Register. A comprehensive set of codes is used to describe the reason for the interruption, such as third-party, burst main, source or reservoir depletion, or pump failure.

The time of the first contact for an unplanned interruption is recorded on the SAP BI system and a scheduler assigns the job to the network operative via Toughbooks. During our audit we confirmed that these times are used for the start of the interruption. As in previous years the time for the completion of the interruption is taken as the operation of the last valve which restores the supply. The network operative is responsible for completing the report with the completion time before leaving site. A subsequent stage of running some water to waste to purge the system of air and ensure that the water is clear is not included. This stage typically takes around 1 hour but in individual cases can take up to 2 hours. During this period customers should have some water, even if sometimes the supply may be intermittent due to air entrainment.

We noted that DCWW assumes that all properties affected by the subsequent valve shut off for the repair are affected for the full duration of the interruption from initial customer contact even though this may not be the case for all properties.

DCWW's methodology for completion time has the benefit of clarity and measures the time that can be fully controlled by DCWW's staff and is used elsewhere in the UK water industry. However, other companies may have different approaches such as basing the completion time on assessing when some water is delivered to the farthest property. We suggest that Ofwat gives further guidance in this area.

Planned interruptions occur as a result of the rehabilitation programmes as well as normal distribution activity. There is always an inspector in attendance during rehabilitation who will be in possession of a Toughbook to record operations. We believe that these interruptions are properly recorded

We noted Ofwat's requirement that planned shut-offs that take place before the notified time should be notified as an unplanned interruption. This was discussed with DCWW who stated that all its operatives were instructed not to commence a shut-off before the stated time.

As for last year we asked DCWW to analyse its data on planned interruptions to see if any had commenced before the stated time. None were recorded as such.

With the change in the DCWW management structure, DG3 management now comes under the ultimate responsibility of the Customer Service Manager. Under the Customer Service Manager, two quality managers have been appointed within the Operation Regulation section with a prime role for ensuring that DG3 data are recorded accurately. They are also charged with undertaking internal QA audits to maintain quality.

As a result of our audit we conclude that DCWW has properly written procedures and an acceptable quality assurance system.

Conclusions

We concluded that DCWW has an effective system for correctly recording its interruptions to supply that meets Ofwat's requirements.

We note that generally site visits are made to check un-seeded properties (properties without address point references) on the GIS. However, for large events this is not generally done. While a few properties may be missed we believe that they will not be material and will not affect the confidence grades assigned.

DCWW undertakes regular checks of the DG3 register and supporting material. We believe these to be adequate and add to our view that DG3 is properly managed.

Comments by Line

Lines 5 to 8: The total number of unplanned interruptions has decreased in the report year but the proportion of longer interruptions increased significantly. The cold winter, and particularly the freeze/thaw event in December where temperatures ranged from -10° to +10° over 6 weeks, has been cited as the reason for the increase in longer interruptions. Of the 7,720 interruptions over 6 hours long, 7,382 occurred in December.

Of the interruptions over 6 hours long, 92% resulted from six incidents. Of these six incidents five could be attributed to freezing.

The longest interruption was in Conyn – Abbey Cwm Hir and lasted nearly 4 days after the pumps at the treatments works froze.

Unplanned interruptions lasting between 3 and 6 hours have declined this year despite the severity of the winter.

Lines 9 to 12: Planned interruptions fell significantly this year, the reasons for which are explained in DCWW's narrative.

Lines 13 to 16: Interruptions due to third parties have significantly increased this year.

Lines 17 to 19: DCWW has reported no failures against its planned and warned times.

Comments on Confidence Grades

As in previous year's, DCWW has given the entries in lines 5 to 19 a confidence grade of A2. We believe that this is a reasonable representation of the accuracy of the data.

TABLE 3A – SEWERAGE SERVICE: EXTERNAL FLOODING**LINES 1 TO 12: ANNUAL FLOODING SUMMARY****Reason for Exception Report**

This exception report has been submitted because of the rise in numbers of external areas flooded due to other causes. These rose from 2969 at JR10 to 3950 at JR11.

Introduction

The key points:

1. DCWW keeps an effective register of flooding incidents with well-documented supporting material. This is consistent with the Reporting Requirements.
2. DCWW undertakes regular checks of the register and supporting material. An extensive review of incident information reported in SAP is carried out on a monthly basis. DG5 incidents and data are well managed.
3. The total number of external flooding incidents caused by hydraulic overload is 426, a marked decrease from the figure of 665 in 2009 - 10. The 426 incidents occurred at 340 separate properties/areas.
4. The total number of external flooding incidents due to other causes is 4526, an increase on the preceding year's figure of 3440. The 4526 confirmed incidents occurred at 3950 properties or areas.
5. Along with an increase in flooding incidents, 2010 - 11 has seen an increase in both collapse and blockage rates. DCWW is investigating the reasons for this.

Our Approach to the Audit

Information on flooding incidents is held in DCWW's sewerage incident management system. From 2001 all records were kept on STAM, but the SAP system replaced STAM in mid-December 2009. The issue previously highlighted with the lack of address data within SAP has now been resolved, allowing incidents recorded in SAP to be linked directly to an asset. Data are downloaded from the SAP system to inform the monthly management reports and to populate an offline database.

In undertaking the audits for DG5, we discussed the LSI methodology document and the process map and capital programme with the staff responsible for the data. We reviewed a sample of records, reconciling the information back to the register entries and data entries in Tables 3 and 3a.

Comments on Methodology

General

DCWW has developed a Levels of Service Indicator Data Collection Manual (LSI) in order to facilitate reporting. All flooding issues are covered in Section 5: DG5 - Flooding Incidents From Sewers. The current version is number 20, updated in 2010. The manual is the subject of continual review. DCWW have made a slight change to their methodology in line with OFWAT clarification JR11/033 to include caravan parks in curtilage flooding. Previously these incidents would have been reported within the 'other' category. The overall methodology is discussed in the commentary for Table 3.

The company collects data on all cases of external flooding regardless of severity. The company states that data relating to external flooding are generally to the same standard as for internal flooding. The company procedures capture the necessary data in order to allocate areas to the three registers to cover the 2 in 10, 1 in 10 and 1 in 20 return periods.

If a property is flooded both internally and externally during the same event, only the internal flooding incident is reported but free text comments should make clear the extent of the associated external flooding and flood paths.

DCWW classifies all external flooding incidents initially according to their severity and consequence. These are then sub-categorised as 'curtilage', 'highways' or 'other' incidents based on details logged for each incident by the network operator. All curtilage-type incidents at non-residential buildings are classed as 'other' incidents. The company describes these categories as follows:

- Curtilage - any flooding (except internal flooding) within the curtilage of a residential building. This includes detached garages and linked detached garages as these are not included in the definition of internal flooding. Where adjacent properties are affected externally by curtilage-type flooding (e.g. flooding within several gardens), each property is classed as a separate external flooding incident.
- Highways – flooding affecting roads, verges and footpaths. Where adjacent properties are affected externally by highways-type flooding (e.g. flooding confined to road impedes access), this should be classed as a single 'highways' incident (OSF or OF in the Welsh Water categories).

- Other - includes external flooding to non-residential buildings e.g. schools, offices, commercial premises and public buildings, public open space, agricultural land and car parks.

DCWW further classifies external flooding in terms of: Serious External Flooding (SEF), Other Serious Flooding (OSF) and Other Flooding (OF).

SEF relates to flooding within the curtilage of a property, and is defined as follows:

- Access to premises cannot be achieved without stepping through sewage flooding;
- A garden is extensively flooded leading to its effective destruction and rendering it unavailable for the enjoyment of family or pets; and
- Outbuildings or garages (other than integral as classified above) are flooded inside

OSF is defined as follows:

- Flooding of 'A' and higher classification roads;
- Flooding of other roads that prevents the passage of vehicles and pedestrians and where there is no alternative route available;
- Flooding which prevents normal operation and access at buildings where there are large numbers of vulnerable people (e.g. children, the infirm or old); and
- Flooding which results in significant disruption and significant inconvenience comparable with the preceding criteria

OF is any external flooding which is less severe than both SEF and OSF.

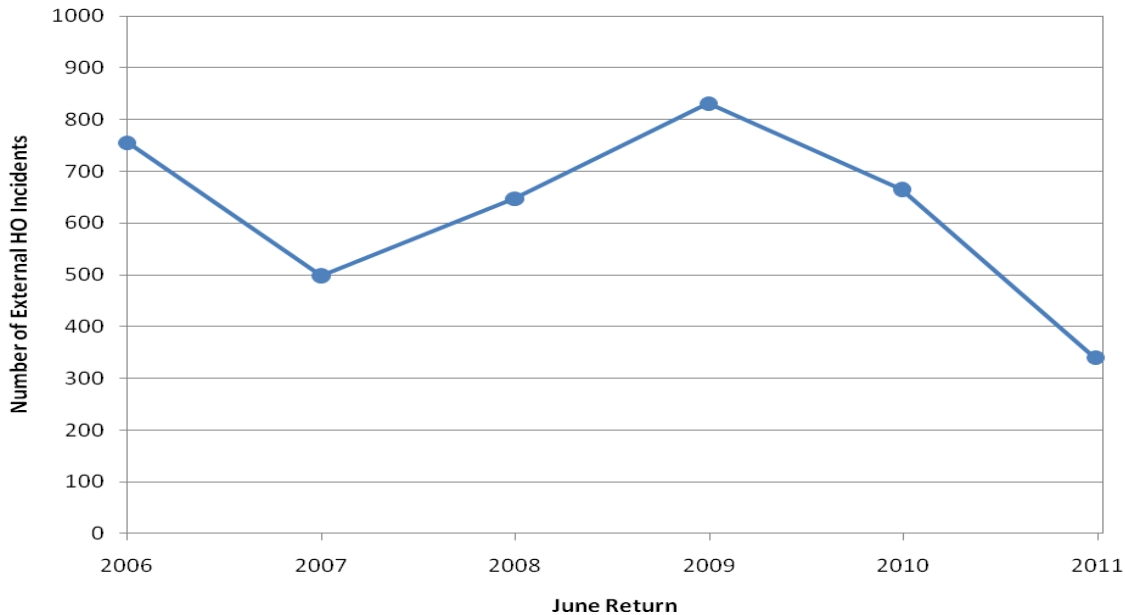
Conclusions

As a result of our audit we conclude that DCWW:

- Has properly written procedures and an acceptable quality assurance system;
- Keeps an effective DG5 incident database with well documented supporting material; and
- Undertakes monthly & yearly checks of the database and supporting material; we believe these to be adequate and demonstrate that DG5 is properly managed.

Flooding – Hydraulic Overload

A total of 340 properties/areas were flooded in the report year. This figure (Line 1) has been calculated assuming an area to be an individual property (i.e. 2 adjacent properties are assumed to be 2 areas), or an individual area flooding incident (i.e. 2 adjacent highway flooding incidents are assumed to be 1 area). This methodology is unchanged from previous years. The numbers reported in recent June Returns are shown below:



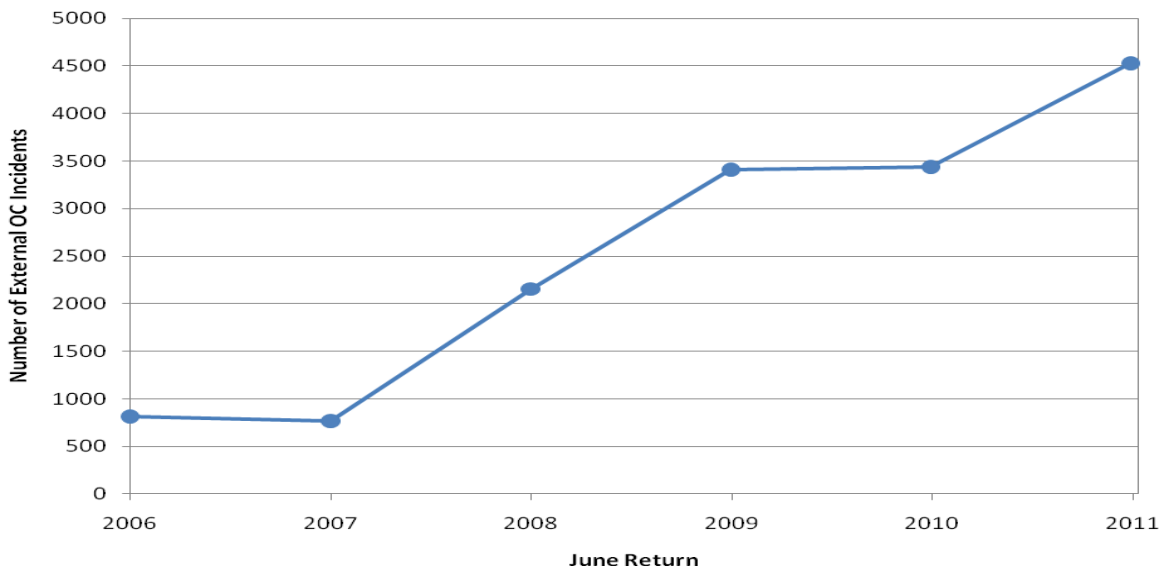
The total number of external flooding incidents caused by HO is 426, a marked decrease from the figure of 665 in 2009 - 10. The 426 incidents occurred at 340 separate properties or areas. The number of properties or areas affected has also

decreased from previous years. 47 areas flooded more than once in the report year. Four properties or areas have flooded externally more than 5 times in the year:

- Bryncoch, Neath – A solution is provisionally programmed for completion in 2011.
- Southgate, Swansea – DCWW are carrying out regular maintenance visits to ensure that the local network is operating at full capacity, minimising the frequency and extent of flooding.
- West Street, Gorseinon – DCWW are investigating the required works to resolve this flooding.
- Cross Roads, Holywell – DCWW are aiming to resolve the flooding issues through capital investment in 2011-12.

Flooding – Other Causes

As with overloaded sewers, Line 8 has been calculated assuming an area to be an individual property or individual external flooding incident. Numbers are shown below.



The total number of external flooding incidents due to other causes is 4526, an increase on the preceding year's figure of 3440. The 4526 confirmed incidents occurred at 3950 properties/areas. As in previous years, the majority of incidents were reported to be due to sewer blockages. The proportion of incidents caused by sewer collapse has increased from 9% to 11%.

Along with an increase in flooding incidents, 2010 - 11 has seen an increase in both collapse and blockage rates. As discussed in our reports for Table 16 and 16a, the collapse and blockage rates (per 1000km of sewer) for 2010 - 11 are 29.80 and 742.58 respectively. DCWW are investigating the reasons for this and reporting in the 'Other Causes' Plan.

'Other Causes' plan

Investigation is currently being carried out by DCWW into flooding incidents attributed to Other Causes. This investigation is a desktop study looking at (but not limited to) the following:

- The history of the incident and asset
- The type of asset and its attributes (material, size, etc)
- Was the incident a one off or are there any linked issues?
- Are there any other issues such as equipment failure?
- Any requests for rehabilitation linked to the asset
- Does the model suggest that the system is prone to issues?

The information is taken to the operations teams for their feedback. Repeat issues are identified and groups of assets which cause problems are highlighted (e.g. interceptors and S24 sewers). One area targeted is Riverside in Cardiff where a programme of survey and jetting is to be carried out.

The "Other Causes Plan" is currently being produced. The report is planned to be completed in June 2011.

Comments by Line

Lines 1 to 5: DCWW has reported 426 incidents of external flooding during the year. This involved 340 locations.

Line 6: 49 incidents are reported to have flooded in severe events.

Line 7: 48 incidents are reported to have flooded in severe events.

Line 8: DG5 Internal flooding incidents due to other causes. The Company has reported 4,526 incidents at 3,950 locations.

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- Line 9: DCWW has reported 2,369 locations which have experienced multiple incidents of external flooding in the last 10 years caused by blockages, collapses and equipment failure
- Line 10: 84 incidents are reported due to equipment failure, compared to 77 in JR10.
- Line 11: 3,943 incidents are reported due to blockages, compared to 3,063 in JR10.
- Line 12: 499 incidents are reported due to collapses, compared to 300 in JR10.

Comments by Confidence Grade

For Lines 1 to 12, the Company has applied a grade of B2. These grades remain unchanged from last year and are supported.

TABLE 10 – WATER DELIVERED**Reason for Exception Report**

This exception report is submitted because the company has missed its leakage target for the year 2010 – 11 and has amended some of the assumptions used in the calculation of water delivered. The company has also introduced a new method of calculating supply pipe leakage which increases estimated losses.

Introduction

In this section we give our commentary on the water balance. We give our commentary on Security of Supply at lines 31 & 32 of our commentary on Table 10a.

The key points:

1. The methodology and procedures are virtually unchanged from previous years. Our comments from last year on the methodology have been repeated for completeness, noting any specific changes, and to address the requests within the Reporting Requirements.
2. The total leakage reported this year was 199.28 ml/d, nearly 5% above the company target of 190 MI/d. This is the first year that DCWW has failed to meet its leakage target.
3. The company's average natural rate of rise (NRR) is 120 MI/yr compared to the 2010 - 11 figure of 150 MI/year. This higher rate of leakage resulted from another cold winter and was compounded by the company starting from a higher level than normal as a legacy of the previous year's cold weather.
4. The company increased its leak resources from September to January by approximately 100 leakage technicians and plan to retain additional resources for the remainder of the current year.
5. Household meter under-registration (MUR) has been increased from 3.23%, the figure derived for JR09 from DCWW's study of a sample of 588 domestic meters, to 4.2%; a figure that the company considers to be closer to the industry average.
6. The non-household meter under-registration (MUR) has been held at 5.46% this year rather than following DCWW's previous decision to reduce NHH MUR linearly from the JR07 figure of 6.3% to the industry average 4.9% by 2011 - 12.

7. The PCC monitor is essentially unchanged. Plans to extend the monitor have been delayed by the emphasis on reducing leakage and company reorganisation. It is hoped to restart the work in 2011 - 12.
8. DCWW revised its methodology for the assessment of water taken unbilled, legally and illegally, for JR10 by replacing the arbitrary 1 MI/d allowance with an assessment based on social housing void properties. For JR11 DCWW have retained this methodology but also reintroduced the 1 MI/d for illegal use at hydrants. The company still considers this figure to be low relative to the industry average.
9. DCWW has introduced a new method for estimating customer supply pipe leakage (SPL), delayed from JR10. The new methodology has had the effect of increasing SPL by approximately 33%.

Our Approach to the Audit

We undertook this audit in conjunction with our audits for part or all of Tables 1, 2, 3, 4, 10a and 10b. In order to assess how DCWW produces its water balance we held a meeting with DCWW to discuss their approach with its Water Demand Manager, Demand Analyst and a representative of its leakage contractor. We examined all aspects of the water balance and reviewed the data from the company's LMARS leakage management system.

Comments on Methodology

General

The company has generally adopted the same approach to estimating the water balance components as used in previous years. Changes are highlighted below.

Measured consumption

Water delivered volumes were based on the income figures included in the company's accounts for 2010 - 11. Adjustments have been made for special agreements and discounts, leakage, meter under-registration and internal meter supply pipe losses.

The water delivered components are derived by resource zone and summarised in our commentary on Table 10.

Unmeasured non-household consumption

DCWW has increased the pre-MUR adjusted, pre-MLE figure this year from 467 l/prop/d to 508 l/prop/d. This figure has been derived from examining consumption records for compulsorily metered non-household customers by property class in CAS and then applying these figures to the unmeasured non-households by property class. This figure is still at the lower end of figures that we have seen elsewhere and is considered reasonable.

DCWW has undertaken further analysis of the data at a zonal level and found a range from 346 l/prop/d to 1047 l/prop/d.

Unmeasured household consumption

Water delivered to unmeasured properties has been based on populations (as reported in Table 7), estimated per capita consumption and supply pipe losses.

Although DCWW had planned to extend its PCC monitor this year it has been delayed by internal reorganisations and the diversion of resources to address the leakage deficit. The monitor is therefore unchanged from JR10 and comprises 76 leakage control areas (LCAs). The unmeasured household PCC obtained from the monitor was 151.5 l/head/d. The overall MUR has remained unchanged at 2.75%.

It is our intention to audit the extended monitor when established, as it has not been fully audited since 2001 following a special requirement by Ofwat and we have not seen the report. Our comments are therefore based on the assumption that the underlying methodology used for the monitor was considered sound and any comments are to suggest where improvements could be made.

An LCA-based monitor is acceptable under the UKWIR report "Best Practice for Unmeasured Per Capita Consumption Monitors". The fact that DCWW's monitor is based on small DMAs is an added advantage.

DCWW has been working to improve its monitor, particularly with respect to reflecting the region as a whole and its leakage contractor has started a programme to review and expand the monitor in accordance with the regulatory requirements set out by Ofwat and approved best practice. It is proposed to add 100 LCAs to the monitor by spring 2012.

To derive unmeasured household PCC for each LCA in the monitor, leakage and measured consumption (household and non-household) are subtracted from the recorded daily DMA consumption. Leakage is estimated for each LCA by subtracting Night Use Allowances from the 7-day rolling median (20 percentile) of the minimum rolling hour for each day between 00:00 and 06:00 and multiplying by the hour-to-day factor. Measured

consumption is taken from CAS as a daily average based on the six-monthly meter readings.

As previously reported, the estimation of Domestic Night Use (DNU) of water is based on permanently monitored "Socrates" control areas. DCWW has adopted the same figure of 2.2 l/prop/hr as reported on last year.

The Non-Domestic Night Use of 5.96 l/prop/hr has again been used. This figure was derived in 2001 from continuous logging at 500 sites, broken down by 11 sectors and was audited by the previous Reporter at the time. A relationship is then derived linking night use to annual billed volume within each sector. The company then applies the allowance to each LCA in proportion to the number of properties in each sector within the LCA, together with their annual billed volumes.

The PCC monitor data are scrutinized to remove any rogue figures and an LCA is rejected if the total number of days for which data is deemed satisfactory is less than 180. The monitor has been given a confidence grade of B2 as in previous years to reflect that not all LCAs meet the criteria in the UKWIR best practice document.

As previously noted from the UKWIR document, a monitor of this sample size is likely to have an accuracy of around +/- 5% at a 90 percentile confidence band for randomness only. Given the concerns about the lack of geographical coverage of the monitor this further reduces confidence in the figures. We again suggest that a B3 confidence grade may be more appropriate than the B2 chosen until the monitor is extended.

The monitor has been used to estimate unmeasured PCC for several years and growth in PCC should be accurate.

Supply Pipe Leakage

DCWW has revised its approach to the calculation of supply pipe leakage (SPL) this year by adopting an expanded components-based approach using company-specific data where possible and following the UKWIR best practice document. A report of the updated assessment methodology has been produced by DCWW's leakage contractor, which describes the approach and highlights the areas of uncertainty and sensitivity. The areas identified as being both uncertain and sensitive, and where further work should be undertaken are:

- Leaks that remain permanently undiscovered because the ALC policy doesn't include location of buried stop-taps/operation of stop-taps
- The growth shape factor of SP leaks over time

- The number of leaks detected on externally measured properties relative to other measured and unmeasured properties.

The new methodology has had the effect of increasing the reported SPL by approximately 33% over last year's figures.

Trunk main SPL has remained unchanged at 62.3 l/prop/d for this reporting year. A similar methodology has been adopted as was used for externally metered properties but using an average zone night pressure (AZNP) of 99.3, and repair times for reported and unreported bursts of 4.5 and 385 days respectively

Meter under-registration

DCWW have not used the household meter under-registration (MUR) figure of 3.23% derived from a prior study of a sample of 588 domestic meters but have opted for a figure of 4.2%, as they believe this is closer to the industry average. The non-household MUR has not been lowered this year in line with DCWW's policy to reduce NHH MUR linearly from the JR07 figure of 6.3% to the industry average 4.9% by 2011 – 12, but has been retained at last year's figure of 5.46%.

Minor components

- During 2009 - 10 DCWW undertook a project to improve the methodology for estimating minor components, which was reported last year. This year the company has further revised the assessment of water taken illegally by reintroducing the assumed 1 MI/d for illegal use from fire hydrants, together with the approach adopted last year based on an estimate of unmeasured social housing properties reported as void but which are statistically likely to be occupied. This increases last year's figure for water taken illegally from 3.45 MI/d to 4.06 MI/d (pre-MLE). DCWW still considers this figure to be lower than the industry average.

All of the minor components have been derived by resource zone.

MLE adjustment

The basis of the MLE adjustment is the same as last year and is in line with the methodology used in the Business Plan. To keep consistency in the figures between tables 10 and 10b, DCWW applied the same MLE adjustment methodology to the zonal figures as was used to produce Table 10. As reported previously this is not strictly in accordance with the Ofwat requirements because the result is that, whereas Ofwat requirements at the company level only permit the MLE to be applied if the imbalance is less than 5%, this has been extended for the individual zones to 10%. Imbalances of greater than 10% were found in four zones which account for about 7% of regional distribution input.

DCWW considers that the advantages of this approach outweigh the disadvantages. We believe that the analysis has been competently done and should give more consistent results. The MLE adjustment required for this reporting year was very low at minus 1.39%.

Conclusions

The company has made a number of small changes that have been based on a perception of their position relative to the industry average and in doing so they have departed from their previous policy. Notable are their revisions to the HH and NHH MUR, in particular HH MUR, which had previously been based on a significant study for DCWW of a sample of 588 domestic meters.

The company has not addressed our concerns over the use of an arbitrary allowance for operational losses and plans to review this during the year have been delayed. The company has addressed our concerns at the application of arbitrary allowances used to calculate minor components and plans to carry out further studies to improve this area of reporting. The company's leakage forecast is consistent with its ELL appraisal

Applying the MLE adjustment at zonal level gives a greater consistency between the draft Water Resources Plan, Tables 10 and Table 10b.

We believe that the processing and compilation of DCWW's information has been done competently and that it should be representative of the situation in the company as a whole

Comments by Line

- Lines 1-6: The water-delivered volumes for measured properties are taken from the income figures recorded in the company accounts, divided by tariff and suitably adjusted for special agreements and discounts, leakage, meter under-registration and internal meter supply pipe losses. The total volume has risen this year for both measured water (272.91 MI/d) and unmeasured water (377.45 ml/d). The measured figure would be expected to rise with the addition of new properties and optants but the increase in measured household is significant (10%). The rise in unmeasured reverses the trend going back at least 5 years (to JR06) and is similar to the JR09 figure. This is despite the continued reduction in numbers of unmeasured properties.
- Lines 10-13: DCWW has revised its approach to the calculation of SPL this year by adopting an expanded components-based approach using company-specific data where possible and following the UKWIR best practice document. This has resulted in a 33% rise in reported SPL.
- Lines 14-15: DCWW have not used the household meter under-registration (MUR) figure of 3.23%, derived from a prior DCWW's study of a sample of 588 domestic meters, but have opted for a figure of 4.2% as they believe this is closer to the industry average. The non-household MUR has not been lowered this year to 5.46% in line with DCWW's policy to reduce NHH MUR linearly from the JR07 figure of 6.3% to the industry average 4.9% by 2011/12 but has been retained last year's figure of 5.46%.
- Line 16: The methodology is unchanged from last year.
- Line 17: The methodology is unchanged from last year.
- Line 18: DCWW has changed its methodology and has not based its figure on the estimate of unmeasured social housing properties reported as void but which are statistically likely to be occupied which was adopted last year, but have reintroduced the 1 MI/d arbitrary allowance for illegal use of fire hydrants and the like. This has resulted in an increase to 4.06 MI/d from 3.62 MI/d.
- Lines 21-23: Water delivered non-potable and at non-standard rates has been extracted from CAS with the exception of the Severn Tunnel (Inbev UK Ltd), where the volume has been supplied by the income team.

- Line 26: The distribution input is produced by resource zone using information recorded from works output meters on the LIBRA system. Daily records from the meters are summarised weekly and scrutinised for rogue data.
- Line 27 & 28: Imports are agreed with Severn Trent Water and United Utilities from their meter records. Exports are recorded on DCWW's CAS.
- Line 29: The water treated at DCWW's own works was calculated by subtracting the volume supplied by Severn Trent Water from the total distribution input.

Comments on Confidence Grades

Lines 7, 8, 25 & 26 have been assigned the same confidence grades as the previous two years. We suggest that a B3 confidence grade for line 8 may be more appropriate than the B2 chosen, until the PCC monitor is extended

The overall balance at Line 30, has been assigned a grade of A2 again this year. This continues to reflect DCWW's small MLE adjustment (-1.39 this year). This is accepted.

TABLE 11A – WATER SERVICEABILITY INDICATORS**LINE 5 - UNPLANNED MAINTENANCE****Reason for Exception Report**

This exception report is submitted because of a changed methodology for reporting numbers of unplanned maintenance jobs. This change reduces the number of jobs reported.

Introduction

The key points:

1. We believe that DCWW's revised assessment using new queries from the SAP database has resulted in a more accurate assessment of reactive work orders than the JR10 assessment, which required significant manual review of the data.
2. Despite our view at the time that the JR10 assessment resulted in reasonable results, the new analysis has resulted in revised figures. We have not attempted to reconcile the changes but believe that the revised figures are more reliable as they do not involve manual intervention and interpretation of operator comments.
3. DCWW has a robust method for categorising reactive maintenance or plant failures using existing coding systems within its SAP maintenance management system. The codes have been in operation for some years and are able to produce trends.

Our Approach to the Audit

We held a meeting with the data providers for unplanned maintenance and audited the information given by DCWW in its narrative back to the data in its SAP database. We audited the generation of unplanned maintenance data using the new SAP report. We reviewed the updated procedures for excluding work order types and compared these with the procedures used for JR10 and previously.

Comments on Methodology

Line 5 – Unplanned maintenance

The data for this line were generated from DCWW's SAP system which is used for generating and storing work order information.

DCWW has a number of codes for recording the types of work orders which are listed below for information. Codes marked with an asterisk are included in the analysis for line 5.

	Code	Description
*	ZM01	Reactive Opex activity <i>e.g. telemetry alarm raised and operator sent to site to reset an item of equipment</i>
	ZM02	Planned Opex activity <i>e.g. annual maintenance inspections based on a planned preventative maintenance schedule</i>
*	ZM03	Reactive Capex (low value) <i>e.g. a small item of equipment fails and is replaced on (typically) a like-for-like basis immediately</i>
*	ZM04	Reactive Capex (high value) <i>e.g. a significant item of equipment fails and is replaced immediately</i>
	ZM05	Planned Capex <i>e.g. proactive replacement of an item of equipment that has been identified as likely to fail or is not working effectively but has not failed. Typically identified through planned preventative maintenance activity (ZM02)</i>
*	ZM06	Reactive Opex (Out of Hours) <i>e.g. an alarm is raised out of hours and an operator is called out to site to investigate</i>
*	ZM07	Reactive Capex (Out of Hours) <i>e.g. an item of equipment fails at night and requires immediate replacement</i>
*	ZMU4	Same as ZM04 but identified as being assigned to the Operations contractor, United Utilities. [NB – following DCWW's re-organisation of their operations, this code is no longer used, but it is pertinent to the activities undertaken in JR10 and before, as referenced in this commentary]

These codes have not changed from previous years.

Work that is planned at short notice (termed 'planned/reactive') for assets that are assessed to exhibit signs of imminent failure (based on inspection or condition monitoring) is considered to be planned.

DCWW also demonstrated that there are four statuses for work orders, as described in the table below. As in the previous table, those marked with an asterisk are included in the analysis for line 5.

	Status	Description
	Released	Work order created (opened) but not complete
*	Closed	Work order complete
*	Technically completed	Work completed but outstanding costs to be assigned
	Flag for deletion	Work orders ready for archiving (typically after 2 years from closure)

During the preparation of JR10, DCWW identified that in previous years, the figures in the ZM03 category had not been included in the reported figures for this line. DCWW rectified this error and the figures reported retrospectively for JR10 and in the JR11 report now include the ZM03 work orders.

During our JR10 audit we noted that a number of work orders relating to certain asset types had to be manually excluded in order to meet the Reporting Requirement definitions. This involved the manual assessment of over 13,000 work orders. While concluding that all appropriate codes and statuses had been included in the reported figures, based on the textual descriptions in each work order, we recommended that for JR11, DCWW developed an automated report from its SAP system which was able to exclude all work orders which did not fall within the scope of the Reporting Requirements, to eliminate the need for manual exclusion of work orders.

DCWW has acted on our recommendations. In December 2010, DCWW invited us to carry out a mid-year audit to review progress made in the various areas highlighted at JR10 and to discuss further enhancements for JR11.

At that time, DCWW had generated a new SAP report which enables asset type to be shown against all unplanned work orders. This enables work orders to be excluded for asset types that do not fall within the definition given in the Reporting Requirements. The report has enabled the previous manual process of excluding work orders to be abandoned, which has greatly improved the quality of the reported data.

The result of this change is that the reported numbers of unplanned maintenance activities is different to that reported in JR10. The change results from work orders being excluded from the report according to the asset type they apply to (for example, fences, access roads and pipework) rather than having to interpret a textual description in the work order, which are not always sufficiently detailed to permit a full understanding of what type of asset the order relates to. For JR10, DCWW did not have time to develop and run a query which included asset types that should be included or excluded.

At JR10, DCWW provided Ofwat with adjusted figures for JR08 and JR09 using the corrected methodology (including ZM03 work orders). However, at that time they were still using a considerable amount of manual interpretation. We noted that the change made to the reporting process would mean that the historic numbers for unplanned maintenance would need to be revisited. We suggested at the time that this should be discussed with Ofwat in advance of JR11 to advise of this change and gain their agreement to it. In both our mid-year and end of year reviews, having audited the data, we are much more confident in the accuracy of the data being reported now compared to at JR10, as the manual intervention has been removed. We therefore support this updated process.

At the JR11 audit, we noted that where no assembly code is logged against a work order, a subjective assessment is required. Typically, 5–10% of descriptions require further discussion with Operations to get better definition of the activity so as to ensure that it is correctly allocated by manual intervention. As noted above, this is a significant improvement on the previous situation. Now that the new system is in place, a behavioural change amongst certain groups within Operations in properly coding and recording tasks is needed. This is a typical finding in such situations, and is to be expected. Training is being implemented to improve this, and DCWW report that they are seeing monthly improvements,

The following table compares the changes in the current view of unplanned maintenance tasks compared to the figures reported at JR10 (all figures include ZM03 Work Orders):

Unplanned Maintenance - Water	JR08	JR09	JR10
Reported at JR10	13,123	11,255	12,698
Current view	11,360	10,517	11,783
<i>Variance</i>	<i>(1,763)</i>	<i>(738)</i>	<i>(915)</i>

The numbers in the table above include ZM03 (reactive capex – low value) incidents. These are excluded from the serviceability measure which is discussed elsewhere.

We audited the generation of unplanned maintenance data using the new report. Data are generated from the corporate SAP system which contains all asset and work order data. Work orders are selected which meet the criteria for being unplanned. In the new report, the asset (“assembly”) type is now identified, which shows what type of asset the maintenance was associated with. The status of the work order is also reported, in line with the criteria given above. Work orders are then excluded through calculation for the following asset types:

Assembly Type	Description
ACR	Access Road
BLD	Building
COM	Compartment (tanks split into compartments)
FNC	Fencing
PWK	Pipework
SAW	Saws
WER	Weir

DCWW demonstrated through this report that the numbers provided to us for updated numbers of unplanned maintenance for JR08, JR09 and JR10 (using calculation rather than manual intervention) were valid and repeatable through this process. We observed some very minor variations in reported work order numbers (less than 5 work orders in a population of over 13,000), which could have been due to late changes being made to work order data. We do not consider this significant or undermining the quality of the data.

DCWW also demonstrated that it has set up a separate ZM03 work order report that separates out work orders of type ZM03 (excluded from the analysis in error prior to JR10), so that these can be subtracted from the reported figures to give OFWAT a like-for-like comparison with the previously inaccurately reported figures. We are comfortable with this approach.

We noted in our JR10 report that DCWW had recently taken a decision to in-source operational and maintenance activity and we were interested to see whether this had an effect on the unplanned maintenance activity. We asked DCWW to provide a report of the June Return data for the first 6 months of the JR11 reporting period and compared this to the first 6 months data for the JR10 reporting period. The results were as follows:

Water only	Unplanned Maintenance Work Orders April-September of reporting year
JR11	5,780
JR10	5,549

It is clear from this brief analysis that there appears to be no radical change in the level of unplanned maintenance resulting from in-sourcing the operational and maintenance activity. DCWW also confirmed that no significant changes had taken place that would affect the level of unplanned maintenance.

At year end, the unplanned maintenance numbers for this report year and the three previous years are as follows:

JR08	JR09	JR10	JR11
11,360	10,517	11,783	10,847

Although the numbers have improved over last year, there is no clear trend over the past 4 years to indicate either a strong improvement or deterioration in asset stock.

In our JR10 report, we commented on the use of paper work orders. DCWW confirmed that paper work orders are now not used except in exceptional circumstances where the corporate SAP system is unavailable for an extended period (more than one day). The same applies to both water and wastewater work orders. DCWW confirmed that no operational staff routine use paper work orders.

We asked DCWW about the use of criticality-based maintenance. This did not appear to have moved on from our JR10 audit. We were shown the criticality bandings assigned to most assets in SAP, although DCWW indicated that this assessment is not complete across the entire asset base. The definition of criticality is based on time from failure to impact on customers, which appears to be an appropriate measure. DCWW indicated that a statistician is being employed to look for trends in asset failures at critical sites which seems an appropriate use of this data to reduce risk to customers.

DCWW showed us some examples of how asset availability will be measured as a guide to how much outage each asset has. This will be used to target interventions on assets. At the current time, the availability measure is in development and has not been implemented in the wider business. We would be interested to see how this develops and whether it can be used to reduce the level of unplanned maintenance.

Conclusions

Based on the foregoing, we believe that DCWW's revised assessment using new queries from the SAP database has resulted in a more accurate assessment of reactive work orders than the JR10 assessment which required significant manual review of the data.

Despite our view at the time that the JR10 assessment resulted in reasonable results, the new analysis has resulted in revised figures. We have not attempted to reconcile the changes but believe that the revised figures are more reliable as they do not involve manual intervention and interpretation of operator comments.

Comments on Confidence Grades

We discussed the expected confidence grade for JR11 data, based on the analysis seen during this review. The reliability band can be increased from B to A due to the elimination of manual intervention to derive the reported data. For the same reason, the accuracy of the data should also increase, although there is still some unintentional miscoding of work orders. We therefore consider that a Confidence Grade of A3 is appropriate for JR11 data.

TABLE 15 - SEWAGE TREATMENT**BLOCK C – SEWAGE SLUDGE DISPOSAL****Reason for Exception Report**

This exception report has been submitted because of a change in the method for assessing the reported volume of sludge produced and disposed of, which has led to a significant reduction from JR10.

Introduction

The key points:

1. We believe that the systems and methodologies used to estimate sludge quantities are reasonable and generally in accordance with the Reporting Requirements. All assumptions have been revealed. The need to estimate the loss of solids during treatment processes reduces the accuracy of the data.
2. We are satisfied that the reported reduction in the weight of sludge produced and disposed of this year (approximately 15% less than reported for JR10) is justified. The reduced figure results from the new advanced digestion plants introduced at Cardiff and Afan (which required approximately 1600 TDS of sludge during commissioning) and increased accuracy due to the greater use of weighbridges.

Our Approach to the Audit

In undertaking the audit for sludge disposal, we met with the relevant staff at Nelson to discuss the procedures and recording systems used by DCWW to monitor sludge disposal. We discussed the base data in the company's quality database (QDB) system and the method of abstraction used to compile the June Return. We reviewed the data provided and its compliance with the Reporting Requirements.

Comments on Methodology

The methodology is unchanged from last year and assumptions remain the same.

The quantity reported represents the sludge processed during the year and relates to point 1 in the diagram shown in Clarification note JR09_026. DCWW classifies dried sludge and sludge treated by lime stabilisation as advanced treatment. Digested sludge is classed as conventionally treated.

At JR12, the accuracy of the figures is expected to increase again due to the installation during 2010 – 11 of two new weighbridges at Cardiff and Afan. These weighbridges will mean that 80% of the sludge in South Wales (not including Hereford) will then be weighed, providing more accurate figures.

The sludge management system is made up of the following:

- QDB – this holds sample data for the sludge produced and also compliance data for the land used for disposal
- The monthly sludge report spreadsheet.

QDB has a list of every land disposal site used by DCWW and can be queried to determine the sludge tonnage per hectare that can be applied to a particular field. It also holds sample results for the sludge produced. Sludge to land is sampled every quarter.

The results provided by disposal contractors (for example the quantity of sludge spread on a particular piece of land) are added back into QDB by DCWW to keep the records up to date. QDB is also backed up with paper records. Land used for sludge disposal is required to be inspected every 20 years and the date of the last inspection is also held in QDB for each piece of land.

The monthly sludge report spreadsheet is populated using the tickets provided by the sludge tanker subcontractors. The tickets provide the volume leaving each works, with the date. These figures are summed to give the total volume. Where there is no weighbridge facility, DCWW assumes that each vehicle leaving a site has a full load. The data collected are a measure of the quantities of sludge taken from treatment sites to a disposal route, not the quantity of raw sludge entering the treatment process. In general, to comply with the reporting guidance, DCWW makes an allowance of 35% reduction in solids where sludge is digested. For two sites, Cardiff and Afan, the commissioning of new digesters mean that the allowance is increased to 41% for these sites.

No other losses are allowed for. Where lime is added during the treatment process the quantity reported is after lime addition. The maximum proportion of lime added is reported

this year to be 18.5%. It was noted that this value varies by site. No significant quantities of sludge are stockpiled.

Total sludge produced has reduced from last year, by approximately 15%. This is partially due to the new advanced digestion plant introduced at Cardiff and Afan which required approximately 1600 TDS of sludge during commissioning. The increased accuracy introduced through the greater use of weighbridges has also contributed to this reduced value as where there is no weighbridge facility, DCWW assumes that each vehicle leaving a site has a full load. In practice, this is unlikely to be true in every case.

For the net increase in sewage sludge treatment capacity, early start schemes have meant that a high proportion of the target 14,550 tds/year increase in capacity has been delivered in year 1 with 13,250 tds/year being reported for this return. Due to a change in planned work, DCWW will probably exceed its overall delivery targets in this area for AMP5 with the total delivered expected to be 14,750 tds/year against a target of 14,550 tds/year.

Conclusions

We believe that DCWW has robust systems and methodologies in place to estimate sludge quantities. The need to estimate the loss of solids during treatment processes reduces the accuracy of the data. We believe that the systems and methodologies used to estimate the various components within the table are reasonable and generally in accordance with the reporting guidelines. We believe that all assumptions have been revealed.

We are satisfied that the reported reduction in the weight of sludge produced and disposed of this year (approximately 15% less than reported for JR10) is justified. The reduced figure results from the new advanced digestion plants introduced at Cardiff and Afan (which required approximately 1600 TDS of sludge during commissioning) and increased accuracy due to the greater use of weighbridges.

Comments by Line

Line 13: The percentage of unsatisfactory sludge disposed of is unchanged at zero.

Lines 14 & 15: Total sludge produced/disposed has reduced by approximately 15% this year. The sludge quantities reported allow for a 35% reduction in solids where sludge is digested for all sites except Cardiff and Afan where this is increased to 41%. The total includes 4.7t of grit and screenings.

Line 16: The net increase in sewage sludge treatment capacity is a result of early start schemes, with 13250 tds/year being reported.

Comments on Confidence Grades

The confidence grade of B3 for lines 13 – 16 is unchanged from last year and is considered to reflect the accuracy with which sewage loads are measured and calculated.

TABLE 16 – SEWERAGE SERVICE ACTIVITIES**LINES 12 AND 13: SEWER COLLAPSES AND BLOCKAGES****LINES 16 AND 17: INTERMITTENT DISCHARGES****Reason for Exception Report**

This exception report has been submitted because of a changed methodology for reporting collapses and blockages and data checks leading to reduced confidence in reported numbers of intermittent discharges.

LINES 12 AND 13: SEWER COLLAPSES AND BLOCKAGES**Introduction**

The key points:

1. The methodology used to report asset balance and changes to the sewer stock during the report year is considered appropriate.
2. The methodology for collapses and blockages has changed for JR11. Previously, where a collapse or blockage caused service failures (such as flooding or pollution) the number of collapses or blockages reported was equal to the number of additional service failures caused. The new AMP5 methodology now records multiple linked service failures caused by a single blockage or collapse incident as a single incident.
3. The change in methodology referred to above would tend to result in a general reduction in numbers of collapses and blockages reported, but numbers have actually risen, compared with JR10. We are satisfied that the numbers reported are a realistic representation of the actual position. The company is reporting higher numbers than most other companies. We recommend that the company investigates reasons for its comparatively high collapse and blockage rates.

Our Approach to the Audit

In undertaking the audit for sewerage service activities we discussed DCWW's approach with the relevant staff at Nelson. We held meetings with the relevant data providers to

review the information concerning network performance and asset balance and compared practice with the Reporting Requirements. We reviewed data collated from GIS and SAP extracts and compared these with the table data.

Comments on Methodology

Information on sewer collapses and blockages is obtained from DCWW's database system, SAP. The SAP system replaced STAM in mid-December 2009. The issue previously highlighted of a lack of address data within SAP has now been resolved, allowing incidents recorded in SAP to be linked directly to an asset. Data are downloaded from the SAP system to inform the monthly management reports and to populate an offline database.

Reports are downloaded from SAP on a weekly basis and the offline database is updated. The data set includes those entries with the SAP Header Code set as collapse or blockage and also any incident found to be caused by a collapse or blockage, for example a flooding or pollution incident with the primary cause confirmed as being a collapse or blockage.

The methodology for collapses and blockages has this year been changed. Previously, where a collapse or blockage caused additional service failures (i.e. flooding or pollution) the number of collapses or blockages reported was equal to the number of additional service failures caused. For example, where a collapse had caused seven internal flooding incidents, and this has contributed seven to the DG5 Other Causes total in Table 3, then seven was also added to the collapse total in Table 16. The new AMP5 methodology now records multiple linked service failures caused by a single blockage or collapse incident as a single incident.

Conclusions

The new SAP system has allowed more automation and has increased the accuracy of data entry on site. The hand-held units used by the operations teams allow data to be entered live with greater information entry onto the system. This also allows collapses and blockages to be allocated to a specific asset. The automatic reporting used by DCWW to extract data from SAP uses the "site failure" code but this still records failures at an equipment level. This complies with the Reporting Requirements, for example where "the failure of a pumping station is reported as one failure regardless of numbers of failed components contributing to the total failure".

We concluded that the increased capability of the IT systems has led to an increased accuracy in the records held. The method used to link incidents of service failure to collapses and blockages was reviewed and is considered satisfactory.

The table below highlights the changes in reportable blockage and collapse rates due to the methodology change:

	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
Collapse rate (AMP 4 methodology)	28.95	35.79	26.51	29.45	28.41	36.71
Collapse rate (AMP 5 methodology)	25.29	32.68	24.20	24.77	22.68	29.80
Blockage rate (AMP 4 methodology)	840.13	821.73	845.79	708.71	680.36	756.35
Blockage rate (AMP 5 methodology)	N/A	812.93	830.64	697.44	675.92	742.58

The company is showing an increase in collapse and blockage rates, compared with previous years. Although the change in methodology has reduced the number reported on a like-for-like basis, DCWW are still reporting higher numbers than other companies. The company defines a sewer collapse as any part of the sewer network which has suffered 50% loss of cross sectional area as a result of structural failure requiring remedial works, or structural failure with an outcome linked to internal or external flooding, pollution, loss of service or odour.

Within SAP a sewer collapse is further defined as one of the following types:

- Total collapse
- Partial collapse
- Fracture
- Deformation
- Defective lateral
- Displaced joint
- Other
- Unknown

Of the 552 collapses reported by DCWW, 181 are listed as “collapse - no flooding” with the secondary causes ranging from “displaced joint” and “fracture” up to “total collapse”. From our audit we believe that, as a result of this stringent definition, DCWW may still be over-reporting their collapses in spite of the change in methodology. We recommend that the company should agree the approach with OFWAT.

For blockages, the company is also reporting higher numbers than most other companies. We recommend that the company investigates reasons for its comparatively high collapse and blockage rates.

Comments by Line

Line 12: DCWW has reported 552 collapses (476 gravity sewer collapses and 76 rising main failures). Collapses caused by third-party interference are excluded.

Line 13: DCWW has reported 13754 blockages. Blockages caused by third parties are excluded. This gives a unit rate of 742.6 per 1000km of sewer based on the total length reported in Line 14, which includes rising mains.

Comments on Confidence Grades

Confidence grades of B2 are applied. We support these grades.

LINES 16 AND 17 - INTERMITTENT DISCHARGES**Introduction***The key points*

1. Only 15 UIDs remain to be improved in AMP5.
2. A comparison between the asset list held in SAP and the assets listed in the consents database indicated an accuracy of within 10%, resulting in a reduction in confidence grade from A3 to B3 for the number of intermittent discharges.

Our Approach to the Audit

In undertaking the audit for Line 16 and 17 we discussed DCWWs approach with the relevant staff at Nelson. A comparison was made between the list of asset IDs held in SAP and the assets listed in the consents database.

Comments on Methodology

Information for reporting on UIDs is held in SAP and linked to the consents database through the SAP asset ID. The information held includes the unique ID of the discharge and its named location. The outstanding UIDs are listed on the Environment Agency's National Environment Programme (NEP) schedule.

Conclusions

There is no AMP5 programme for Unsatisfactory Intermittent Discharges as there was no driver for their inclusion in the NEP. There are 15 outstanding UIDs at JR11 programmed for completion in AMP5. These comprise:

- 14 reported as carry-overs in JR10
- 3 of these were completed in this report year
- 1 has been removed due to better information (modelling or other information)
- 5 have been added since JR10 via a change protocol submission.

Since JR10 there has been a change to the numbers of assets in each asset type due to data cleansing, but this does not significantly impact the total number of assets. Data cleansing includes re-classification of assets, removal of duplicate assets from the database and removal of assets now disused. There are 3445 intermittent discharges currently recorded in SAP, a slight reduction on the 3500 figure given at JR10.

Each asset is linked to the consents database through the individual SAP asset ID. A comparison was therefore made between the asset list held in SAP against the assets listed in the consents database. This comparison indicates an accuracy of within 10%, hence the reduction in confidence grade from A3 to B3 for line 17.

Comments by Confidence Grade

A confidence grade of A1 has been applied to line 16. This is unchanged from last year and accepted. A reduced grade of B3 has been applied to line 17 as discussed above. We accept this grade.

TABLE 16A – SEWERAGE SERVICEABILITY INDICATORS**LINES 1 – 5 SEWERS MAINTENANCE AND SEWERAGE NON-INFRASTRUCTURE MAINTENANCE****Reason for Exception Report**

This exception report has been submitted because of a changed methodology for reporting collapses and blockages, the potential for a small under-reporting of equipment failures and a change in methodology resulting in a change in the numbers of unplanned maintenance jobs reported.

Introduction*The key points:*

- 1) Since JR10, DCWW has changed its methodology for reporting collapses and blockages. This change has reduced its collapse and blockage rates, compared with the AMP 4 methodology previously used, but DCWW is still reporting high levels of collapses and blockages relative to the industry.
- 2) The change in methodology referred to above would tend to result in a general reduction in numbers of collapses and blockages reported, but numbers have actually risen, compared with JR10. We are satisfied that the numbers reported are a realistic representation of the actual position. The company is reporting higher numbers than most other companies. We recommend that the company investigates reasons for its comparatively high collapse and blockage rates.
- 3) The automatic reporting used to extract data from SAP uses the “site failure” code but this still records failures at an equipment level. DCWW has reported failures at pumping stations, overflows, storage tanks and telemetry control; a shorter list of asset types than shown in the Reporting Requirements. The automatic reporting currently used does not necessarily pick up all incidents which “could have a detrimental impact on service to customers or the environment”, particularly where these relate to equipment in the network, rather than on company sites.
- 4) The number of unplanned maintenance jobs is around the same as last year. DCWW has generated a new SAP report which enables asset type to be shown against all unplanned work orders. This enables work orders to be excluded for asset types that do not fall within the definition given in the Reporting Requirements. The report has enabled the previous manual process of excluding work orders to be abandoned, which has greatly improved the quality of the reported data.

Our Approach to the Audit

We held meetings with the relevant data providers for this table. For lines 1 to 3 we reviewed the offline database of collapse and blockage incidents which is downloaded from the SAP system to inform the monthly management reports.

For lines 4 and 5 we reviewed the data available from SAP and the codes used to extract the data used in this return.

Comments on Methodology

Rising main failures, sewer collapses and blockages

Information on rising main failures, sewer collapses and blockages for lines 1 to 3 is obtained from DCWW's database system, SAP. The SAP system replaced STAM in mid-December 2009. The issue previously highlighted of a lack of address data within SAP has now been resolved, allowing incidents recorded in SAP to be linked directly to an asset. Data are downloaded from the SAP system to inform the monthly management reports and to populate an offline database.

Reports are downloaded from SAP on a weekly basis and the offline database is updated. The data set includes those entries with the SAP header code set as collapse or blockage and also any incident found to be caused by a collapse or blockage, for example a flooding or pollution incident with the primary cause confirmed as being a collapse or blockage.

The methodology for collapses and blockages has this year been changed. Previously, where a collapse or blockage caused additional service failures (eg. flooding or pollution) the number of collapses or blockages reported was equal to the number of additional service failures caused. For example, where a collapse had caused seven internal flooding incidents, and this had contributed seven to the DG5 - other causes total in Table 3, then seven was also added to the collapse total in Table 16a. The new AMP5 methodology now records multiple linked service failures caused by a single blockage or collapse incident as a single incident.

Sewerage equipment failures

For equipment failures the company uses its SAP system to manage and store information relating to work orders and fault codes for asset failures. The automatic reporting used by DCWW to extract data from SAP uses the "site failure" code but this still records failures at an equipment level. This complies with the Reporting Requirements, for example where "the failure of a pumping station is reported as one failure regardless of numbers of failed components contributing to the total failure".

This methodology has not changed from JR10. It should be noted that, while this definition is met, there is still some small potential for under-reporting of numbers, as discussed in 'Conclusions' below.

Unplanned maintenance

For unplanned maintenance on wastewater non-infrastructure ME&I assets, DCWW's SAP system is used for scheduling and reporting all jobs. The figure is produced using a direct download report from Business Intelligence (as line 4 in Table 11a), which is run monthly.

Unplanned work is assessed from completed work orders associated with asset failures of any type. The report generated includes work orders for all wastewater asset types (CSO, SPS, STW, SST) and the report details include the status code of each work order. Work that is planned at short notice (termed 'planned/reactive') for assets that are assessed to exhibit signs of imminent failure (based on inspection or condition monitoring) is considered to be planned. Where no assembly code is logged against a work order, a subjective assessment is made.

Conclusions

The new SAP system has allowed more automation and has increased accuracy of data entry on site. The hand-held units used by the operations teams allow data to be entered live with greater information entry onto the system. This also allows collapses and blockages to be allocated to a specific asset. The automatic reporting used by DCWW to extract data from SAP uses the "site failure" code but this still records failures at an equipment level. This complies with the Reporting Requirements, for example where "the failure of a pumping station is reported as one failure regardless of numbers of failed components contributing to the total failure".

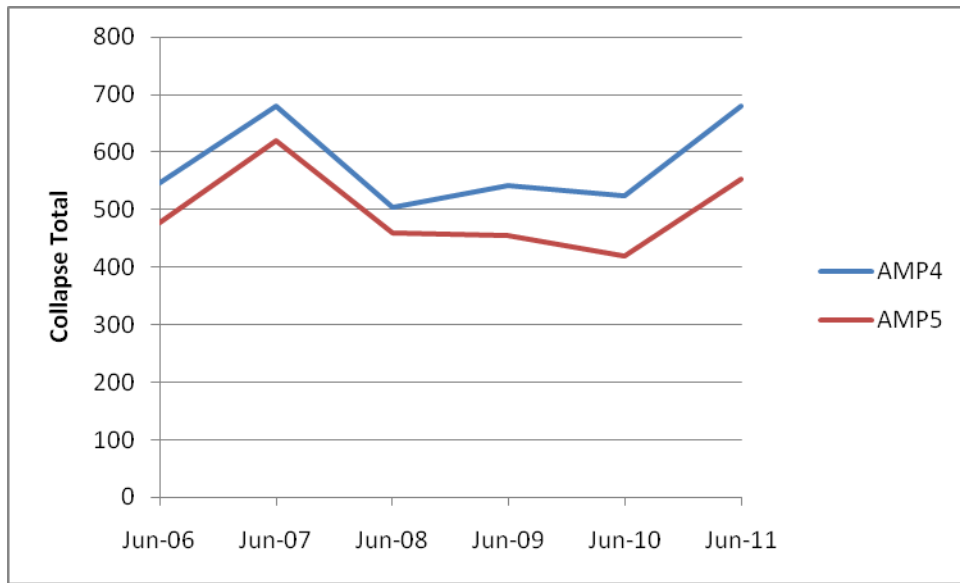
We concluded that the increased capability of the IT systems has led to an improved accuracy in the records held.

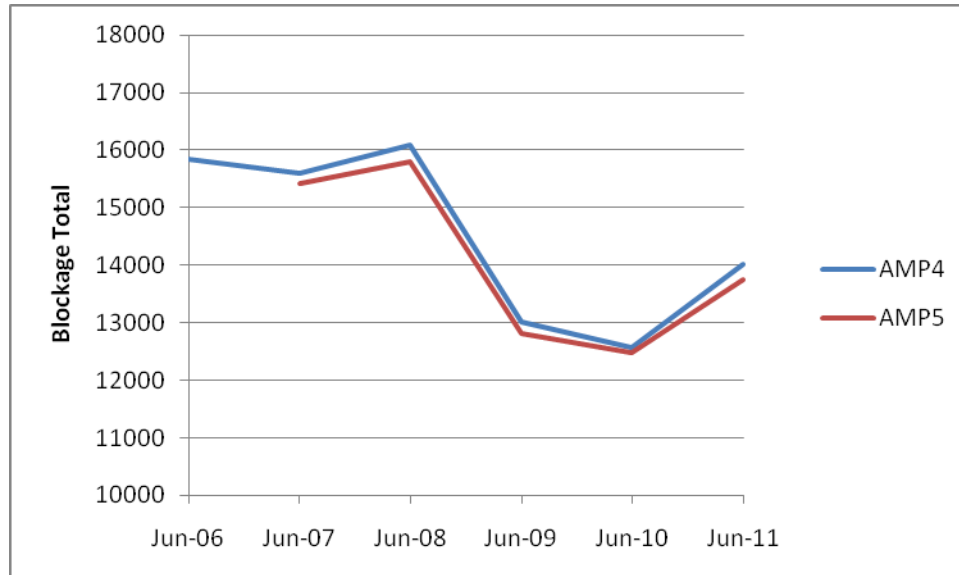
Collapses and blockages

The method used to link incidents of service failure to collapses and blockages was reviewed and is considered satisfactory. The change in the numbers of blockages and collapses following the methodology change is as follows:

	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
Collapse total (AMP 4 methodology)	546	679	504	541	525	680
Collapse total (AMP 5 methodology)	477	620	460	455	419	552
Blockage total (AMP 4 methodology)	15846	15589	16078	13019	12572	14009
Blockage total (AMP 5 methodology)	N/A	15422	15790	12812	12490	13754

Even with the change in methodology, the total numbers of collapses and blockages have increased this year by 32% and 10% respectively. We note that the blockage numbers were felt by DCWW to be artificially low at JR10 due to under-reporting following the change-over to SAP. The overall trend is not affected by the change in methodology and is illustrated in the charts below.





The increase in the total number of blockages and collapses is thought to be due to a combination of the increase in accuracy of data logged by site teams, dry weather for the first six months of the year and severe winter weather affecting site attendance. Further detail on the assessment of the numbers of collapses, blockages and equipment failures is given below.

The company defines a sewer collapse as any part of the sewer network which has suffered 50% loss of cross sectional area as a result of structural failure requiring remedial works, or structural failure with an outcome linked to internal or external flooding, pollution, loss of service or odour. DCWW sub-defines a sewer collapse in the SAP system in terms of the following types:

- Total collapse
- Partial collapse
- Fracture
- Deformation
- Defective lateral
- Displaced joint
- Other
- Unknown

The 'Other' category above includes incidents of the following types:

- Defective lining
- Damaged manhole
- Siphon repair
- Rising main air valve
- Defective invert

Partial collapse numbers have decreased for JR11, indicating an increase in accuracy of follow-up survey work. The default entry used is 'partial collapse'. This is then confirmed by survey and updated in SAP as required.

DCWW classify a collapse caused by a third party as a collapse like any other, although these are excluded from Lines 1 and 2 (and also Table 16 Line 12). A total of 143 sewer collapses were caused by third party interference to the public sewer and have been excluded from the reported total of 552 (comprising 476 gravity sewer collapses and 76 rising main failures).

	2010/11 (AMP 5 methodology)		2009/10 (AMP 5 methodology)	
	Number	%	Number	%
Total collapse	91	16.5	51	12.2
Partial collapse	212	38.4	231	55.1
Fracture	134	24.3	79	18.9
Defective lateral	9	1.6	13	3.1
Displaced joint	52	9.4	8	1.9
Deformation	19	3.4	12	2.9
Other	35	6.3	25	6.0
Total	552	100	419	100

Reported Collapses for JR10 and JR11 (AMP 5 Methodology)

We confirm that the sum of rising main breaks and gravity sewer collapses is equal to the total number of sewer collapses implied by Table 16. We can confirm that the split between rising mains and gravity sewer collapses is accurate and consistent with the confidence grade of B2 applied.

DCWW records 5 cause types for blockages plus the category “unknown”. A breakdown of sewer blockages by cause is given below:

	2010/11 (AMP 5 methodology)		2009/10 (AMP 4 methodology)	
	Number	%	Number	%
Silt	352	2.6	347	2.8
Fat	695	5.1	747	5.9
Roots	209	1.5	164	1.3
Debris	2332	17.0	2817	22.4
Rags	1480	10.8	1061	8.4
Unknown	8686	63.2	7436	59.2
Total	13754	100	12572	100

Reported blockages for JR10 and JR11 (AMP 5 Methodology)

‘Third party’ blockage incidents (totalling 143) have been excluded from Line 3 (and Table 16 Line 13). Blockages on private sewers have also been excluded.

The source of blockages can be difficult to confirm as in most cases operatives cannot inspect the sewer until the blockage is cleared. The allocations to different causes should therefore be treated with caution.

Equipment failures

DCWW uses its SAP system to manage and store information relating to work orders and fault codes for asset failures. The automatic reporting used by DCWW to extract data from SAP uses the “site failure” code but this still records failures at an equipment level. This complies with the reporting requirements, for example “the failure of a pumping station is reported as one failure regardless of numbers of failed components contributing to the total failure”. This methodology has not changed from JR10.

Three years ago the definition of Line 4 was altered, to asking only for equipment failures “*which had, or were likely to have, a detrimental impact on service to customers or the environment*”. It goes on to list the types of equipment that could cause such failures. These are:

- Pumping stations (foul, surface water or combined)
- Overflows (CSO and emergency)
- Penstocks
- Anti-flood valves
- Vacuum sewerage systems
- Storage tanks
- Flow control devices (e.g. Hydrobrakes)
- Real-time telemetry control systems
- Oil interceptors
- Chemical dosing.

In common with the last report year, DCWW has reported failures at pumping stations (including terminal pumping stations), overflows, storage tanks and telemetry control. This is a shorter list of asset types than shown in the Reporting Requirements. Some of the other components listed in the definition will also be captured by DCWW's methodology where they fall within the site boundary of a pumping station, overflows or storage tank. However some will be missed where they are at stand-alone locations in the network. The automatic reporting currently used does not necessarily pick up all incidents which "could have a detrimental impact on service to customers or the environment".

DCWW explained how it uses a number of fault codes to generate the report for this line. The system is not currently set up to allow coding of the equipment failures within SAP to the level required to meet the reporting guidelines, as DCWW has not yet made the necessary enhancements to system. A standalone search of SAP is required to identify other equipment failures for:

- Penstocks
- Anti-flood valves
- Vacuum
- Flow control devices
- Oil interceptors

- Chemical

The JR11 figures are based on the same methodology as last year, with a reduced confidence grade to reflect the potential underreporting of the above asset types. DCWW are now more confident that they understand the figures but accept that the data need to be improved. A plan is in place to resolve this issue, with the following actions:

- Increase the data set to cover all assets;
- Review “site effect” codes and alter as required;
- Train site teams by September 2011 to allow six months of good data for JR12 using fully trained staff;
- Develop a new report to extract data from SAP for reporting purposes.

We would expect to see this plan implemented by JR12.

Unplanned maintenance

For wastewater non-infrastructure ME&I assets, DCWW’s SAP system is used for scheduling and reporting all jobs. The data for Block B are produced using a direct download report from Business Intelligence (as line 4 in Table 11a) which is run monthly. DCWW has a number of codes for recording the types of work orders which are listed below for information. Codes marked with an asterisk are included in the analysis for Block B.

	Code	Description
*	ZM01	Reactive Opex activity <i>e.g. telemetry alarm raised and operator sent to site to reset an item of equipment</i>
	ZM02	Planned Opex activity <i>e.g. annual maintenance inspections based on a planned preventative maintenance schedule</i>
*	ZM03	Reactive Capex (low value) <i>e.g. a small item of equipment fails and is replaced on (typically) a like-for-like basis immediately</i>
*	ZM04	Reactive Capex (high value) <i>e.g. a significant item of equipment fails and is replaced immediately</i>

	ZM05	Planned Capex <i>e.g. proactive replacement of an item of equipment that has been identified as likely to fail or is not working effectively but has not failed. Typically identified through planned preventative maintenance activity (ZM02)</i>
*	ZM06	Reactive Opex (Out of Hours) <i>e.g. an alarm is raised out of hours and an operator is called out to site to investigate</i>
*	ZM07	Reactive Capex (Out of Hours) <i>e.g. an item of equipment fails at night and requires immediate replacement</i>
*	ZMU4	Same as ZM04 but identified as being assigned to the Operations contractor, United Utilities. [NB – following DCWW's re-organisation of their operations, this code is no longer used, but it is pertinent to the activities undertaken in JR10 and before, as referenced in this commentary]

These codes have not changed from previous years.

Unplanned work is assessed from completed work orders associated with asset failures of any type. The report generated includes work orders for all wastewater asset types (CSO, SPS, STW, SST) and the report details include the status code of each work order. Work that is planned at short notice (termed 'planned/reactive') for assets that are assessed to exhibit signs of imminent failure (based on inspection or condition monitoring) is considered to be planned.

During our JR10 audit we noted that a number of work orders relating to certain asset types had to be manually excluded in order to meet the Reporting Requirement definitions. This involved the manual assessment of significant numbers of work orders. While concluding that all appropriate codes and statuses had been included in the reported figures, based on the textual descriptions in each work order, we recommended that for JR11, DCWW developed an automated report from its SAP system which was able to exclude all work orders which did not fall within the scope of the Reporting Requirements, to eliminate the need for manual exclusion of work orders.

DCWW has acted on our recommendations. In December 2010, DCWW invited us to carry out a mid-year audit to review progress made in the various areas highlighted at JR10 and to discuss further enhancements for JR11.

At that time, DCWW had generated a new SAP report which enables asset type to be shown against all unplanned work orders. This enables work orders to be excluded for asset types that do not fall within the definition given in the Reporting Requirements. The report has enabled the previous manual process of excluding work orders to be abandoned, which has greatly improved the quality of the reported data.

As reported last year, it was found that the process used for the reported figure for JR07 to JR09 had not recorded all jobs due to an omission of code “ZM03” – Reactive capex – low value. This was rectified for JR10 and these jobs are included for JR11. We are much more confident in the accuracy of the data being reported now compared to at JR10, as the manual intervention has been removed. A methodology document is now in place describing how the automatic report should be run.

Where no assembly code is logged against a work order, a subjective assessment is still required. Training is required to improve this and to enable the confidence grade to be increased up to an A2.

The unplanned maintenance numbers for this report year and the three previous years (including ZM03 work orders) are as follows:

JR08	JR09	JR10	JR11
26311	26781	28204	28,681

The value in this year’s table is similar to that of previous years.

Comments by Line

Line 1: There are 76 rising main failures reported this year.

Line 2 & 3: The collapse and blockage figures cannot be directly compared to JR10 figure due to methodology change implemented this year. Overall blockage and collapse figures have increased as discussed above. Problems caused by third parties are excluded.

Line 4: This includes reported failures at pumping stations, overflows, storage tanks and telemetry control; a shorter list of asset types than shown in the Reporting Requirements. Some of the other components listed will also be captured where they fall within the site boundary. However, some will be missed where they are at stand alone locations. There is uncertainty around the figures when compared to Reporting Requirements.

Line 5: The figure for unplanned maintenance is similar to that for JR10 at 28,681.

Comments on Confidence Grades

Lines 1 & 2: We can confirm that the split between rising mains and gravity sewer collapses is accurate and consistent with the confidence grade of B2 applied. We believe that this grade is appropriate for both lines.

Line 3: The assigned confidence grade is B3. This is accepted

Line 4: The assigned confidence grade is B4, this is accepted. This is reduced from the previous year's grade of B3 to reflect the poor data and method used to generate the figure.

Line 5: The confidence grade has been increased this year from B3 to A3 in line with line 4 in Table 11a.

TABLE 16B – SEWERAGE SERVICE SERVICEABILITY INDICATORS**Reason for Exception Report**

This exception report has been submitted because of the effect on the reported data of excluding sites subject to operator self-monitoring, resulting in an apparent deterioration in performance which is actually caused by a change in the sample size.

Introduction

The key points:

1. We have reviewed the data and calculations undertaken by DCWW and we are satisfied that the methodology, calculations and the results produced are realistic and justifiable.
2. The exclusion of those sites subject to Operator Self Monitoring skews the apparent performance and appears to reduce the overall probability for the 95%ile measure. This is because only four samples per annum are required for high-performing works. These works do not then have enough samples for the analysis and are excluded. This exclusion could result in an apparent deterioration in performance which is actually due to the reduction in the data set, rather than a reduction in performance.

Our Approach to the Audit

In undertaking the audit for this table, we examined the procedures and recording systems used by DCWW. We discussed the base data in the company's QDB system and the method of abstraction and calculation used to compile the June Return. We reviewed the data provided and its compliance with the Reporting Requirements.

Comments on Methodology

General

DCWW hold all consent data in the Quality Database (QDB). With the introduction of Operator Self Monitoring (OSM) in January 2010 the vast majority of samples are now taken by DCWW sampling teams and recorded on QDB. Up to 2010, the EA would take samples and carry out analysis. This change in sampling approach has increased confidence in the dataset as sampling data are no longer moved from one system to another (from the EA system to the DCWW system).

Sites with insufficient samples are excluded. Data are extracted from QDB for all final effluent (FE) sample points.

The consent limit (BOD, NH₃, SS) for each site is held in the DCWW consent database. The current consent limit is extracted from the register for each site and a check is then carried out to highlight those with a seasonal consent or a change in consent from last year

This check ensures that the correct consent is used for each sample by cross checking the sample data with the consent details. This aligns each sample with the correct consent. A number of consents have changed this year due to the completion of quality schemes.

Since JR10, DCWW have developed a risk assessment-based methodology. The methodology used allows sites that have experienced events over the past 3 years to be identified. This is a historically-based analysis, which does not necessarily identify those works which have not yet experienced an event, but where performance is deteriorating.

DCWW have incorporated a simple linear forecast in their Excel spreadsheet which allows the prediction of future trends based on the historic performance of works. The probability of failure within the next five years can then be predicted. A risk score is then allocated to each works based on the linear forecast and this risk score is used to rank the treatment works to identify potential intervention requirements, such as addressing an operational issue.

Sample Weather Waiver

The sample weather waiver is where the EA waive a consent failure due to weather conditions. This can have an impact on results. It is applied when the final effluent temperature is less than 5⁰C. The samples taken during these conditions are included from

the data set as there is no way to determine which samples are subject to the weather waiver. A new code may be introduced to help identify these samples.

Operator Self Monitoring

For all sites subject to Operator Self Monitoring (OSM), a new sampling regime has been agreed with the EA. For high performing works the sample requirement drops from twelve times a year to four. These sites are therefore excluded from the analysis based on the Reporting Requirements. This has impacted on the number of sites excluded this year.

Number of sites excluded due to insufficient samples	2008	2009	2010
BOD	18	11	82
Ammonia	17	10	5
Suspended Solids	18	11	82

Conclusions

The risk-based methodology developed by DCWW since JR10 allows sites that have experienced events over the past 3 years to be identified. This is a historically-based analysis, which does not necessarily identify those works which have not yet experienced an event, but where performance is deteriorating.

This exclusion of high-performing sites from the analysis, which arises because only four samples are required each year, has an impact on the BOD and Suspended Solids analysis as it causes the exclusion of a large percentage of high-performing sites and therefore skews the results. This exclusion may indicate an apparent deterioration in performance which is actually due to the reduction in the data set, rather than a reduction in performance.

DCWW demonstrated the sensitivity of the results to the exclusion of the OSM sites during our audit and it is evident that the exclusion of these sites reduces the overall probability for the measures, with the exception of BOD Max > 2 consent and Suspended Solids Mean > 0.5 consent.

We have reviewed the data and calculations undertaken by DCWW and we are satisfied that the methodology, calculations and the results produced are realistic and justifiable. Results given in the table show some changes from last year but no firm trend is apparent.

Comments on Confidence Grades

The confidence grades given are unchanged from last year. The A2 grade assigned by the company is considered appropriate, particularly given the change to in-house sampling by DCWW.

TABLE 35 – FINANCIAL MEASURES: WATER SERVICE - EXPENDITURE BY PURPOSE**BLOCK A – BASE SERVICE PROVISION****BLOCK H – EXPENDITURE TOTALS****Reason for Exception Report**

This exception report is submitted because the company has allocated leakage expenditure differently to the allocation used in the Final Determination and also changed the methodology for allocating operating costs at WTWs, as compared to the methods used for JR10.

Introduction

This exception report relates only to Blocks A and H of Table 35.

The key points

1. For leakage expenditure DCWW has allocated the capital element of infrastructure to IRE and meters and PRVs etc. to Management and General MNI. This is in line with previous June Returns and the Final Determination but not with the allocations in the Final Business Plan, which included no allocation for leakage within M&G.
2. The methodology for allocation of WTW opex from capex has changed for AMP 5 to reflect the detailed assessments of expected opex undertaken for the Final Business Plan.

Our Approach to the Audit

For the audit of these lines we:

- Reviewed the cost allocation procedures and the methodology and calculations used to populate Table 35.
- Undertook a detailed audit of the allocation of costs for leakage and how the allocation compares to the FD.
- Reviewed the methodology used to calculate operating expenditure associated with new assets.

- Reviewed consistency with other tables.

Comments on Methodology

Other than as described below, there were no changes in methodology from those used for JR10.

Conclusions

Leakage

During our audit of Table 35 we reviewed the allocation of expenditure for leakage in the report year. In the Final Business Plan the company allocated £36m for leakage as capital expenditure. This related to a proportion of the work undertaken by their partners, of which 67% had been allocated to capex and 33% to opex.

The capital allocation for leakage detection and repair expenditure in the Final Business Plan was included in Supply Demand. This was re-assigned by Ofwat to opex in the Final Determination. We understand that since the FD a number of discussions have taken place between DCWW and Ofwat and it was agreed in principle that some of the expenditure could be allocated to capex, as follows:

- Bulk meter and other equipment replacement – capex
- Leakage detection and repair to reduce towards ELL – capex
- Leakage detection and repair to maintain ELL – opex
- Data improvement, monitoring and reporting – opex

In allocating leakage expenditure between opex and capex we believe that DCWW have followed these principles.

We reviewed the leakage spend for the report year with DCWW. The expenditure on Bulk Meters has been accelerated in the Business Plan and has been allocated to base service MNI, classified as M&G. Expenditure on replacement PRVs has also been allocated here, giving a total spend for the year of £6m. This is in line with reporting for previous years' June Returns. This was allocated to water non-infrastructure capital expenditure in the Final Business Plan, but not included in M&G.

The leakage detection and repair expenditure for the report year was reviewed in detail with the leakage staff. A summary report detailing overall spend by category and a full report for October 2010 were analysed during the audit. The detailed report tracked back to actual hours spent by individuals by job. This was then allocated to an operational area and opex or capex depending on whether the particular zone was categorised as meeting ELL or reducing to meet ELL. We reviewed the split and it appears reasonable. The total spend in this area was £2.6m and the overall split for leakage detection and repair was 26% opex and 74% capex.

All leakage detection recovery and emergency work was correctly allocated to opex.. Meter verification and water treatment works balancing was correctly allocated to opex. Leakage strategy monitoring and reporting was allocated to opex. All project work was allocated to capex. It was not possible to audit all of the projects but an overview of the projects suggests this allocation is not unreasonable. Expenditure on the leakage contract for the report year was allocated 45% to opex and 55% to capex.

This issue affects lines in Tables 35 Block A, 35a Block A, 35b Block A, as well as the operating expenditure tables for the water service.

Operating Costs

For the report year the company has changed the methodology used in estimating additional operating costs arising from capital investment at its WTWs. The methodology for estimating operating costs from other capital investment schemes has not changed.

We reviewed the methodology for estimating additional operating costs arising from capital expenditure for our audit of the PR09 Final Business Plan submission. This provides the framework for a detailed opex estimating procedure. Estimated inputs are required for the key components of labour, energy, chemicals, maintenance, waste management and additional rates. Where appropriate, standard unit cost rates are included, based on current company experience. The opex estimating system is a component of an overall whole-life cost estimating system and estimated at the same time as the target capital costs.

From our audits it was not possible to confirm a formal process to assess the cost of operation, after completion of major capital schemes. We challenged the project teams as to whether this is formally considered in post-project reviews but we believe that the main focus is on capital expenditure only. We understand that cost consultants do consider opex arising from completed schemes in informing the unit cost database but this is generally done only for specific reviews.

For the report year DCWW has changed the methodology used for calculating additional operating costs from capital investment as compared to the previous June Return.

For AMP 4 DCWW required its operating partners to identify additional costs for a list of schemes provided by DCWW as being completed within the report year or previous years. They were asked to report additional opex incurred during the report year only. We commented in previous reports that the additional opex claimed appeared low as compared to the estimated opex at target cost stage.

For AMP 5 DCWW undertook a review of expected operating costs by scheme and included these in the Final Business Plan. The costs included in the June Return for the report year are those from the target cost sheets, reviewed to take account of changes in energy costs and applied for the proportion of the year following completion of the scheme.

The total value of £1.43m of additional opex cost is made up of £0.563m inflated from previous year and £0.863m new expenditure incurred during the report year, at the following sites:

Water Treatment Works	Comments
Crai WTW	Full year effect of scheme. Works operating at 50% output but as other works are making up the shortfall, full output opex estimate is included.
Bryn Cowlydd WTW	Maintenance scheme not yet handed over. Costs included are for 6 months operation.
Cwellyn WTW	Full-year effect of scheme completed in AMP 4 year 5.
Mynydd Llandegai WTW	Scheme commissioned September 2010 so six months worth of costs included. Although only operating at 60% output, full costs are included as additional water was taken from other sources.
Rhiwgoch WTW	Full year effect of scheme included although output has been reduced and made up from other sources.
Court Farm WTW	Full year effect included but output higher than average estimate to make up for shortfalls elsewhere.

We examined the SAP expenditure as compared to the previous year at each WTW and found a number of differences between actual additional expenditure and the expected figures included above. DCWW have explained these differences as being due to conjunctive use of sources to meet demand.

In our report for JR10 we expressed some concerns that additional operating costs appeared low as compared to the estimates used in whole life costing exercises. We believe that the methodology used for JR11 would better reflect actual increase in operating costs. This also aligns with the operating costs allowed for in the Final Determination.

This change affects Table 35 Opex lines, Table 35a Opex lines, Table 37 Opex lines as well as the operating expenditure tables for the water service.

Confidence Grades

DCWW have reviewed the confidence grades applied to leakage expenditure for the report year. The capital costs are taken from the SAP system, capital allocation procedures are robust and a grade of B is appropriate. From the sample audit an assessment of B2 is not unreasonable.

The confidence grades for additional opex for the year have remained unchanged at AX. These are taken from company systems for the operating costs and additional opex estimates come from whole life cost exercises or for a small proportion from % capex estimates.

Summary Reports for Remaining Lines and Tables

This section contains brief summary reports for tables or lines where we do not wish to make an exception report. In some cases we have drawn attention to minor changes or issues which we do not believe are sufficiently material to warrant an exception report. We have also noted a small number of issues which we challenged during the audit.

Table 1 - Key Outputs: Water Service - 1

- There are no exceptions that we wish to report for this table.
- We have carried out a full audit using the same rigour as in our report on the June Returns for 2010 and previously.
- DCWW has made minor changes to its methodology to incorporate the revised reporting requirements. We believe these changes are in accordance the Reporting Requirements and the company has followed the stated methodology.
- DCWW has exceeded its annual base service water efficiency target.

Table 2 – Key Outputs: Water Service – 2

Lines 1 – 4 and 20 -23

- There are no exceptions that we wish to report for these lines. Lines 5 -19 (supply interruptions) are covered by an exception report above.
- We have carried out a full audit using the same rigour as in our report on the June Returns for 2010 and previously.
- There were no significant changes to DCWW's methodology this year.
- There were no changes to confidence grades from last year. We believe that the confidence grades are acceptable.
- No restrictions on use of water were imposed during the reporting period

Table 3 – Key Outputs: Sewerage Service - Internal Flooding

- There are no exceptions that we wish to report for this table.
- We have carried out a full audit using the same rigour as in our report on the June Returns for 2010 and previously.
- There were no significant changes to DCWW's methodology this year.
- There were a few changes to confidence grades from last year. We believe that the confidence grades are acceptable.

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

Lines 13 – 29

- There are no exceptions that we wish to report for these lines. Lines 1 -12 (Annual Flooding Summary) are covered in an exception report above.
- We have carried out a full audit using the same rigour as in our report on the June Returns for 2010 and previously.
- There were no significant changes to DCWW's methodology this year.
- There were no changes to confidence grades from last year. We believe that the confidence grades are acceptable.
- External only flooding incidents without a high frequency of repetition or a link to an internal flooding incident have a low 'suffering' score and hence are not cost-beneficial for investment. Schemes to address these incidents are therefore unlikely and it is likely that the number of reported external problems will continue to increase during AMP5.

Table 4 – Key Outputs: Customer Service – 1

- There are no exceptions that we wish to report for this table.
- We have carried out a full audit using the same rigour as in our report on the June Returns for 2010 and previously.
- There were no significant changes to DCWW's methodology this year.

- There were no changes to confidence grades from last year. We believe that the confidence grades are acceptable.
- Billing response times were maintained at a very high standard.

Table 5 – Key Outputs: Customer Service 2

Lines 6 -12 DG8 – Bills for Metered Customers

Line 17 – Special Assistance Register

- There are no exceptions that we wish to report for these lines.
- We have carried out a full audit using the same rigour as in our report on the June Returns for 2010 and previously.
- There were no significant changes to DCWW's methodology this year.
- There were no changes to confidence grades from last year. We believe that the confidence grades are acceptable.
- The number of void properties has increased and so has the number of non-income meters, due mainly to Water Assist customers, who have grown significantly in numbers.
- The number of customers on the special assistance register has risen significantly, from 6990 at JR10 to 11555 at JR11, due mainly to an increase in customers on the Water Assist scheme.

Table 6 – Key Outputs: Customer Service Standards

- There are no exceptions that we wish to report for this table.
- We have carried out a full audit using the same rigour as in our report on the June Returns for 2010 and previously.
- There were no significant changes to the data reported this year compared to JR10. However, we note the following:
 - During the report year, the number and timing of appointment events were migrated from the Work Planning System (WPS) to the SAP platform. Automated BI reports are now generated from SAP, which enables Table 6 information to be generated on a monthly basis for management checks and

reviews. Otherwise, the methods used to report events and payments have not changed from those reported in JR10.

- Lines 1 (Failure to specify time slot) and 2 (Failure to keep appointment) increased from 26 and 428 in JR10 to 405 and 767 in JR11. The company believes (and we agree) that this was due to the initial unfamiliarity of staff with new functionality in SAP and the Toughbooks used in the field. The company has instigated a suite of daily BI reports to enable them to identify data integrity and/or training issues. The company is rolling out more training, for completion by end of August 2011, to address these issues.
- Lines 32 (Customer Charter – number of payments) and 33 (Customer Charter – value of payments) increased from 1,149 and £81,011 in JR10 to 4,893 and £181,513 in JR11. The increases are primarily attributable to Meter Installations and Supply Problem payments. For the latter, 2979 payments were made to customers who experienced disruption of supply during the severe weather of December 2010, but fell outside the GSS Regulations. For the remainder, the company attributes the increases to changes in systems and procedures. It would appear that there was a loss of visibility of target dates and an increase in abortive visits for some meter installation jobs, together with the loss of some information normally captured to demonstrate compliance. The company has taken a precautionary approach and made payments when it could not fully demonstrate compliance. We agree that this was a sensible approach in the circumstances.
- We do not believe the above points to be material and, as explained below, we believe that the use of output data from the new automatic recording system will improve the quality of the company's submission.
- There were no changes in confidence grades on any lines between JR10 and JR11. We believe that the confidence grades are reasonable. We agree that B3 for Lines 1 to 3 is an appropriate grade to reflect the manual monitoring and adjustments which need to be made to the outputs from the automatic recording systems so as to collate the data for appointments. Once the training described above has been undertaken and embedded, we would anticipate that this confidence grade could improve.

Table 6b – Applications for Vulnerable Customer (Water Assist) Status

- There are no exceptions that we wish to report for this table.
- We have carried out a full audit using the same rigour as in our report on the June Returns for 2010 and previously.

- There were no significant changes to the data reported this year compared to JR10 or to the Company's methodology.
- The returns for this table relate to Water Assist, which is Welsh Water's version of Watersure. The total number of successful applications has significantly increased, from 8,819 in JR10 to 18,058 in JR11.

Table 7 - Water Properties and Population

- There are no exceptions that we wish to report for this table.
- We have carried out a full audit using the same rigour as in our report on the June Returns for 2010 and previously.
- DCWW has made minor changes to its methodology to incorporate the introduction of the SAP BI system to replace its former Work Planning System (WPS). We do not believe these to be material.

Table 8 - Water Metering

- There are no exceptions that we wish to report for this table.
- We have carried out a full audit using the same rigour as in our report on the June Returns for 2010 and previously.
- DCWW has made minor changes to its methodology to incorporate the introduction of the SAP BI system to replace its former Work Planning System (WPS). We do not believe these to be material.
- We noted that meter optants were over 30% below the PR09 forecast figure.

Tables 10a – Security of Supply: Planned Level of Service and Critical Period

- There are no exceptions that we wish to report for these tables.
- We have carried out a full audit using the same rigour as in our report on the June Returns for 2010 and previously.
- There were no significant changes to DCWW's methodology this year.

- DCWW are in the process of producing a revised draft Water Resources Management Plan (WRMP), which is expected to be complete in the near future. Until then figures are based on the draft WRMP. As a result of our audit for the Water Resource Plan we believe that DCWW has been using best practice methods. Further changes in SOSI can be expected until all revised abstraction licences, reflecting the EA's requirements on sustainability reductions, are in place.
- There were no changes to confidence grades from last year. We believe that the confidence grades are acceptable.

Tables 10b - Environment Agency Data: Water Balance Component Data by Resource Zone – Annual Average Outturns

- There are no exceptions that we wish to report for this table. DCWW failed to meet their leakage target (Total - Line 55) but this is highlighted in the exception report submitted for Table 10.
- We have carried out a full audit using the same rigour as in our report on the June Returns for 2010 and previously.
- DCWW has made minor changes to its methodology to incorporate the introduction of the SAP BI system to replace its former Work Planning System (WPS). We do not believe these to be material.
- Assumptions used are consistent with the FBP
- Analysis of the summer rainfall ranked 2010 - 11 as a normal year.

Table 11 – Water Service Activities

- There are no exceptions that we wish to report for this table.
- We have carried out a full audit using the same rigour as in our report on the June Returns for 2010 and previously.
- There were no significant changes to the data reported this year compared to JR10. However, we note the following:

As part of a data cleansing and review exercise, DCWW has identified 239.31km of water distribution network (which consisted of communication pipes, washout drainage pipes and abandoned mains) which have to date been incorrectly classified as mains within the GIS system. For JR11, these have

been re-classified using Line 8 to make the reconciliation, and giving a line total of 255.62km.

- We do not believe the above point to be material and it has improved the quality of the company's submission.
- There were no changes in confidence grades and we believe that the confidence grades allocated are reasonable.

Table 11a – Water Service Serviceability Indicators

Lines 1 – 4 and 6 – 8

- There are no exceptions that we wish to report for these lines.
- We have not audited the company's use of the Serviceability toolkit. We have reviewed, but not audited the company's serviceability trend graphs and confirmed our agreement with their assessments of serviceability. Further information is given in the section on Serviceability, within our commentary on the Board Overview above.
- There were no significant changes to DCWW's methodology this year.

Table 12 – Water Explanatory Factors

- There are no exceptions that we wish to report for this table.
- We have carried out a full audit using the same rigour as in our report on the June Returns for 2010 and previously.
- DCWW has reviewed the number of water treatment works and reduced the reported number from 73 (JR10) to 66 for JR11 – due to the deduction of 7 bulk supply works that had previously been included. There were no other significant changes to the data reported this year compared to JR10. However, we note that DCWW has undertaken further analysis of average pumping head using data from various corporate systems. DCWW plans to investigate automating some of these calculations for JR12 and we support this approach. The reported figure for average pumping head has increased from 158 metres head to 174.1 metres head.
- We do not believe the above point to be material and it has improved the quality of the company's submission.
- There were no changes in confidence grades and we believe that the confidence grades allocated are reasonable.

Table 13 - Sewerage Properties and Population

- There are no exceptions that we wish to report for this table.
- We have carried out a full audit using the same rigour as in our report on the June Returns for 2010 and previously.
- DCWW has made minor changes to its methodology to incorporate the introduction of the SAP BI system to replace its former Work Planning System (WPS). We do not believe these to be material.
- There were no changes in the confidence grades and we believe that the confidence grades are reasonable.

Table 14 - Sewage Collected

- There are no exceptions that we wish to report for this table.
- We have carried out a full audit using the same rigour as in our report on the June Returns for 2010 and previously.
- DCWW has made minor changes to its methodology to incorporate the introduction of the SAP BI system to replace its former Work Planning System (WPS). We do not believe these to be material.
- There were no changes in the confidence grades and we believe that the confidence grades are reasonable.

Table 15 – Sewage Treatment

Lines 1-12

- There are no exceptions that we wish to report for these lines.
- We have carried out a full audit using the same rigour as in our report on the June Returns for 2010 and previously.
- There were no significant changes to DCWW's methodology this year.
- There were no changes to confidence grades from last year. We believe that the confidence grades are acceptable.

Table 16 – Sewage Service Activities

Lines 1 -11, 14 – 15 and 18 – 21

- There are no exceptions that we wish to report for these lines.
- We have carried out a full audit using the same rigour as in our report on the June Returns for 2010 and previously.
- There were no significant changes to DCWW's methodology this year.
- There were no changes to confidence grades from last year. We believe that the confidence grades are acceptable.

Table 16a – Sewerage Serviceability Indicators

Lines 6 – 7

- There are no exceptions that we wish to report for these lines.
- We have not audited the company's use of the Serviceability toolkit. We have reviewed, but not audited the company's serviceability trend graphs and confirmed our agreement with their assessments of serviceability. Further information is given in the section on Serviceability, within our commentary on the Board Overview above.
- There were no significant changes to DCWW's methodology this year.

Table 17a – Sewerage Sub-area Explanatory Factors

- There are no exceptions that we wish to report for this table.
- We have carried out a full audit using the same rigour as in our report on the June Returns for 2010 and previously.
- There were no significant changes to the data reported this year compared to JR10. However, we note the following:
 - DCWW has used the same seven catchment areas as used for previous returns. Following the re-organisation of DCWW Operations, we note that the above catchment areas do not necessarily match the current actual operating areas. However, for consistency in regulatory reporting, DCWW has repeated the data collection and analysis used for previous returns to

compute the JR11 numbers. We understand that the company is in the process of reviewing their sewerage catchment management boundaries, which may result in some changes in future years. The changes are likely to be in terms of both the number of areas and the boundaries.

- There have been changes and general improvements in the collection and allocation of costs in all service areas – these are discussed in relation to Tables 21 and 22.
- We do not believe the above points to be material and the changes in the collection and allocation of costs have improved the quality of the company's submission.
- There were no changes in confidence grades and we believe that the confidence grades allocated are reasonable. Confidence grades are not required for cost lines.

Table 17b - Sewage Treatment Works: Large Works Information Database

- There are no exceptions that we wish to report for this table.
- We have carried out a full audit using the same rigour as in our report on the June Returns for 2010 and previously.
- There were no significant changes to the data reported this year compared to JR10 or to DCWW's methodology. However, there have been changes and general improvements in the collection and allocation of costs in all service areas – these are discussed in relation to Tables 21 and 22.
- We challenged the inclusion of tankered waste in the calculation of total loads. This was removed before the table was finalised.
- There were only minor changes in confidence grades and we believe that the confidence grades allocated are reasonable. Confidence grades are not required for cost lines.

Table 17c - Sewage Treatment Works: Numbers

- There are no exceptions that we wish to report for this table.
- We have carried out a full audit using the same rigour as in our report on the June Returns for 2010 and previously.

- There have been only minor changes to the data reported this year compared to JR10 with no major changes to DCWW's methodology.

Table 17d - Sewage Treatment Works: Loads

- There are no exceptions that we wish to report for this table.
- We have carried out a full audit using the same rigour as in our report on the June Returns for 2010 and previously.
- There were only minor changes to the data reported this year compared to JR10 with no major changes to DCWW's methodology.
- There were no change in confidence grades this year and we believe that the confidence grades are reasonable.

Table 17f – Sewage Treatment Works - Costs

- There are no exceptions that we wish to report for this table.
- We have carried out a full audit using the same rigour as in our report on the June Returns for 2010 and previously.
- There were no significant changes to the data reported this year compared to JR10 or to DCWW's methodology. However, there have been changes and general improvements in the collection and allocation of costs in all service areas – these are discussed in relation to Tables 21 and 22.
- Confidence grades are not required for cost lines.

Table 21 – Regulatory Accounts (Current Cost Accounting): Activity Costing Analysis – Water Service - 1

- There are no exceptions that we wish to report for this table.
- We have carried out a full audit using the same rigour as in our report on the June Returns for 2010 and previously.
- There were no significant changes to the data reported this year compared to JR10. However, we note the following:

- Prior to the report year, the majority of front-line operational services were provided by United Utilities Outsourcing Services (UUOS) and Kelda Water Services (KWS). Following re-organisation, these have been in-sourced. DCWW had hoped to consolidate its financial accounting into a single company ledger to reflect the new organisation. That exercise is not now expected to take place until October 2011 at the earliest. Therefore, for JR11, DCWW has continued to maintain the three cost (company) ledgers. These roll up to the single DCWW entity and as such there are no transaction costs. Results are consolidated into one report where operational costs are shown separately to head office costs. This report reflects the regulatory requirements and has been created specifically to prepare the tables.
- For the purposes of operational cost accounting, the computation of costs for the tables follows the same general approach as used in the previous returns. Most direct costs for operational services are taken from the UU and Kelda ledgers. The support costs (e.g. finance and human resources) reported in UU and Kelda ledgers are included in head office general and support costs, and are allocated across services based on functional costs. Further direct and general and support costs incurred by DCWW centrally are added to present a complete cost for each of the activities. DCWW has used the same methodology for allocating G&S costs as for JR10.
- Costs are allocated directly using SAP whenever possible. Where this is not possible the allocation is made by local managers. Many new cost centres have been established with the aim of improving the allocation and collection of costs to specific work areas more automatically and accurately. These have all been in operation for the report year, and it is noted that in most operational areas there has been a significant increase in direct (automatic) cost allocation: direct labour allocations increased from 64% in 2009 - 10 to 78% in 2010 - 11.
- Power costs are captured directly to the asset according to individual meters and cost codes. Where power costs need to be split between business units this is done on manager assessments based on the equipment used. DCWW's power team carried out an extensive review of the cost allocation in the report year. As a result for 2010 - 11, where the cost of electricity needs to be split between treatment and pumping, DCWW were able to report these costs with improved confidence. For water treatment, the power team looked at the 40 largest treatment works and conducted an exercise to assess the power rating of the equipment involved, together with the works operator's guidance on the number of hours run for each plant item per day. The treatment works assessed in this manner account for a little over 65% of the total energy used in water treatment. These exercises have enabled the percentage split of energy between the categories to be calculated.

Percentage splits at individual treatment works have been used where appropriate. As a significant proportion of total energy used in water treatment had been accounted for in the sample of larger works chosen, DCWW considered it justifiable to develop an overall 'energy-weighted' split for water (into pumping and treatment). These methods are an improvement on the managers' judgement which has been used in the past.

- We believe that the above changes to the collection and allocation of costs in all service areas have improved the quality of the company's submission.
- Confidence grades are not required for cost lines.

Table 21a – Regulatory Accounts (Current Cost Accounting): Activity Costing Analysis – Water Service - 2

- There are no exceptions that we wish to report for this table.
- We have carried out a full audit using the same rigour as in our report on the June Returns for 2010 and previously.
- There were no significant changes to the data reported this year compared to JR10. However, we note the following:
 - There has been no change to DCWW's Capitalisation Policy for the report year. Our audit showed the policy to be well established within the business with clear guidelines issued to staff.
 - There have been changes and general improvements in the collection and allocation of costs in all service areas – these are discussed in relation to Table 21.
 - At the time of the audit, DCWW had allocated bulk supply imports to water resources. This cost relates to a potable water supply imported from Severn Trent Water mainly from Mitcheldean WTW. We understand that this is a treated water supply and as such should be allocated to water treatment in line with the definitions. Following the audit, this has been re-allocated to water treatment.
- We believe that the above changes to the collection and allocation of costs in all service areas have improved the quality of the company's submission.
- Confidence grades are not required for cost lines.

Table 21b – Regulatory Accounts (Current cost Accounting): Activity costing Analysis – Retail Service

- There are no exceptions that we wish to report for this table.
- We have carried out a full audit using the same rigour as in our report on the June Returns for 2010 and previously.
- There were no significant changes to the data reported this year compared to JR10. However, we note the following:
 - DCWW has outsourced its income and billing activities to Veolia Water for the whole of the report year. DCWW outsourced its services to developers for the period April to December 2010. From 1 January 2011, these services were in-sourced.
 - Employee costs within DCWW which are allocated to retail services relate to costs for commercial, financial and management services which are included in general and support. These are allocated to household and non-household using the proportions of bills raised. As noted above, DCWW costs for developers services for January to March 2011 are included in developers services costs, non-household.
 - There have been changes and general improvements in the collection and allocation of costs in all service areas – these are discussed in relation to Table 21.
- We believe that the above changes to the collection and allocation of costs in all service areas have improved the quality of the company's submission.
- Confidence grades are not required for cost lines.

Table 22 – Regulatory Accounts (Current Cost Accounting): Activity Costing Analysis – Sewerage Service - 1

- There are no exceptions that we wish to report for this table.
- We have carried out a full audit using the same rigour as in our report on the June Returns for 2010 and previously.
- There were no significant changes to the data reported this year compared to JR10. However, we note the following:
 - Prior to the report year, the majority of front-line operational services were provided by United Utilities Outsourcing Services (UUOS) and Kelda Water Services (KWS). Following re-organisation, these have been in-sourced. DCWW had hoped to consolidate its financial accounting into a

single company ledger to reflect the new organisation. That exercise is not now expected to take place until October 2011 at the earliest. Therefore, for JR11, DCWW has continued to maintain the three cost (company) ledgers. These roll up to the single DCWW entity and as such there are no transaction costs. Results are consolidated into one report where operational costs are shown separately to head office costs. This report reflects the regulatory requirements and has been created specifically to prepare the tables.

- For the purposes of operational cost accounting, the computation of costs for the tables follows the same general approach as used in the previous returns. Most direct costs for operational services are taken from the UU and Kelda ledgers. The support costs (e.g. finance and human resources) reported in UU and Kelda ledgers are included in head office general and support costs, and are allocated across services based on functional costs. Further direct and general and support costs incurred by DCWW centrally are added to present a complete cost for each of the activities. DCWW has used the same methodology for allocating G&S costs as for JR10.
- Costs are allocated directly using SAP whenever possible. Where this is not possible the allocation is made by local managers. Many new cost centres have been established with the aim of improving the allocation and collection of costs to specific work areas more automatically and accurately. These have all been in operation for the report year, and it is noted that in most operational areas there has been a significant increase in direct (automatic) cost allocation: direct labour allocations increased from 64% in 2009 - 10 to 78% in 2010 - 11.
- Power costs are captured directly to the asset according to individual meters and cost codes. Where power costs need to be split between business units this is done on manager assessments based on the equipment used. We understand that allocations take account of volumes, installed plant capacity and hours run. DCWW's power team carried out an extensive review of the cost allocation in the report year. As a result for 2010 - 11, DCWW were able to report these costs with improved confidence. For wastewater treatment, the power team looked at the 35 largest treatment works and conducted an exercise to assess the power rating of the equipment involved, together with the works operator's guidance on the number of hours run for each plant item per day. The treatment works assessed in this manner account for a little over 50% of the total energy used in wastewater treatment. These exercises have enabled the percentage split of energy between the categories to be calculated. Percentage splits at individual treatment works have been used where appropriate. These methods are an

improvement on the managers' judgement which has been used in the past.

- We believe that the above changes to the collection and allocation of costs in all service areas have improved the quality of the company's submission.
- Confidence grades are not required for cost lines.

Table 22a – Regulatory Accounts (Current Cost Accounting): Activity Costing Analysis – Sewerage Service - 2

- There are no exceptions that we wish to report for this table.
- We have carried out a full audit using the same rigour as in our report on the June Returns for 2010 and previously.
- There were no significant changes to the data reported this year compared to JR10. However, we note the following:
 - There has been no change to DCWW's Capitalisation Policy for the report year. Our audit showed the policy to be well established within the business with clear guidelines issued to staff.
 - There have been changes and general improvements in the collection and allocation of costs in all service areas – these are discussed in relation to Table 22.
- We believe that the above changes to the collection and allocation of costs in all service areas have improved the quality of the company's submission.
- Confidence grades are not required for cost lines.

Tables 25abc - Regulatory accounts (CCA) - Analysis of Fixed Assets by Business Unit

- There are no exceptions that we wish to report for these lines.
- We have carried out a full audit using the same rigour as in our report on the June Returns for 2010 and previously.
- There were no significant changes to DCWW's methodology this year.
- No AMP adjustment is required this year, as this was made in the tables for JR10. The reclassification adjustment is also zero.

Table 32 – Financial Measures: Analysis of Fixed Asset Additions and Asset Maintenance by Asset Type

- There are no exceptions that we wish to report for this table
- We have carried out a full audit report using the same rigour as in our report on June Returns for 2010 and previous years.
- There were no significant changes to the methodology used by DCWW in completing this table.
- We confirm that DCWW has updated the coding structure used for allocation to reflect the changes in Reporting Requirements.

Table 33 - Financial Measures - Accounting Charges: Current Cost Depreciation and Infrastructure Renewals Charge by Service (CCA)

- There are no exceptions that we wish to report for these lines.
- We have carried out a full audit using the same rigour as in our report on the June Returns for 2010 and previously.
- There were no significant changes to DCWW's methodology this year.

Table 34 – Financial Measures - Analysis of Non-infrastructure Fixed Asset Additions by Life Categories (CCA)

- There are no exceptions that we wish to report for these lines.
- We have carried out a full audit using the same rigour as in our report on the June Returns for 2010 and previously.
- There were no significant changes to DCWW's methodology this year.
- The asset life of the Switch ITEC project has been amended to 20 years. Some elements of the project are likely to have shorter lives, but much of the systems analysis and design should have a live approaching 20 years.

Table 35 - Financial Measures: Water Service; Expenditure by Purpose

Lines 7 - 18

- There are no exceptions that we wish to report for this table
- We have carried out a full audit report using the same rigour as in our report on June Returns for 2010 and previous years.
- There were no significant changes to the methodology used by DCWW in completing this table.
- There has been a slight change to the methodology for estimating expenditure for adopted assets at nil cost. This now uses the unit cost database which we believe is an improvement over the previous methodology of inflating PR04 costs.
- There are no changes in confidence grades and we believe them to be reasonable

Table 35a – Expenditure Comparisons by Purpose: Water Service

- There are no exceptions that we wish to report for this table
- We have carried out a full audit report using the same rigour as in our report on June Returns for 2010 and previous years.
- There were no significant changes to the methodology used by DCWW in completing this table.
- The company has revised the phasing of the Business Plan to manage the delivery using a risk-based approach. There has been a shortfall for the report year for the mains rehabilitation programme but DCWW are confident that the overall programme will be achieved.
- There are a number of items included in lines 1 and 2 which were not in the FD. These include the carry-over of AMP 4 expenditure, new spending on drought schemes, the transfer of fleet vehicles from operating partners, expenditure to fit out the new Linea building and the capex element of the leakage work identified in the exception report for Table 35.

Table 36 – Financial Measures: Sewerage Service - Expenditure by Purpose

- There are no exceptions that we wish to report for this table
- We have carried out a full audit report using the same rigour as in our report on June Returns for 2010 and previous years.
- There were no significant changes to the methodology used by DCWW in completing this table.
- There has been a slight change to the methodology for estimating expenditure for adopted assets at nil cost. This now uses the unit cost database which we believe is an improvement over the previous methodology of inflating PR04 costs.
- We have reviewed the confidence grades and believe them to be reasonable.

Table 36a Expenditure Comparisons by Purpose: Sewerage Service

- There are no exceptions that we wish to report for this table
- We have carried out a full audit report using the same rigour as in our report on June Returns for 2010 and previous years.
- There were no significant changes to the methodology used by DCWW in completing this table.
- We have reviewed the report year expenditure against the FD and note that the company has included in the table a number of items which were not included in the FD, such as expenditure carried forward from AMP 4, the purchase of fleet vehicles from operating partners and the fitting out of the Linea building

Table 42 – Greenhouse Gas Accounting

- There are no exceptions that we wish to report for this table.
- We have carried out a full audit using the same rigour as in our report on the June Returns for 2010 and previously.
- There were no significant changes to DCWW's methodology this year. The company has fully utilised the methodology of the carbon workbook, using the UKWIR WRC GHG estimation tool, version 5.
- Confidence grades have improved from JR10 because the methods for data collection and the confidence in that data have both improved. The confidence grades reasonably reflect the accuracy and the reliability of the results.