Scottish Water

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SCOTTISH WATER

WIC ANNUAL RETURN

COMMENTARIES

June 2012

A Tables Base Information

Table A1 Connected and Billed Properties

General Comments

Property numbers are for the report year as at 30 September 2011.

In general, a confidence grade of A2 has been applied to the figures reported in Table A1 for household properties in the report year, and B4 for non-household properties. The confidence grade for non-household properties has dropped from B3 in last year's Annual Return and reflects the fact that data corrections are likely to arise from the recently initiated review of market data, in addition to the other known issues noted in this commentary. Further details are set out below.

Data Sources

The Non-Household figures have been sourced from settlement reports supplied by the Central Market Agency (CMA), consistent with the Annual Returns since 2009.

Since the retail market opened to competition in April 2008, the CMA has calculated all wholesale primary charges due to Scottish Water from Licensed Providers via a series of settlement runs in respect of each month. For each settlement run, the CMA provides an aggregated settlement report which is used by Scottish Water for billing purposes and a disaggregated settlement report to enable reconciliation of wholesale charges by market participants. These disaggregated settlement reports have been used to populate the Annual Return A Tables, consistent with previous years.

There are four reconciliation runs undertaken for each month, P1, R1, R2 and R3. The required frequency of runs is set out in the Market Code and supporting Code Subsidiary Documents. These are undertaken according to a timetable published by the CMA. The September 2011 2nd Reconciliation (R2), the latest available at the end of March 2012, was used to populate the A Tables.

The disaggregated settlement reports include all properties which are in settlement at the CMA. When new Supply Points are created, either via the New Connection or Gap Site processes, under the market arrangements there are a number of steps to be followed, starting with the Supply Point being requested by Scottish Water and finishing with it being accepted into charge by the Licensed Provider. Between these two steps, the Supply Point is created in the CMA's systems but is not included in settlement and therefore cannot generate wholesale charges. Such Supply Points are designated as being 'New' or 'Partial' in the CMA systems and, because they are not in settlement, they are not included in the Annual Return.

As of 31 March 2012, there were 7,982 water and 9,089 sewerage 'New' and 'Partial' Supply Points registered at the CMA and a further group of around 1,000 Supply Points which have been rejected from the new connection or gap site processes by the LP. All of these Supply Points remain in the Central Systems but are not in settlement and therefore not reflected in the A Tables. Activity to date to process such Supply Points into settlement has prioritised those which are large or occupied so the remaining balance is likely to include a relatively high proportion of vacant or small sites. It is also known that a proportion will inevitably have been created erroneously, for example they may be duplicates of existing Supply Points in the market. Following the introduction of a mechanism to remove these Supply Points in the CMA's March release, all these will be reviewed and removed from the Central Systems in

the next few months, where appropriate to do so. The remainder will be considered tradable and should enter settlement following acceptance by the Licensed Provider, resulting in a corresponding increase in reported non-household properties in next year's Annual Return.

The Commission has recently initiated a Data Improvement Project in the market involving all market participants, in view of recent issues with customer transfers arising from data issues and the importance of data quality in light of the potential development of an Anglo-Scottish market. The review will consider the accuracy, completeness and reliability of all data in the market and will include verification and cleansing where necessary. Market participants will also be required to publish details of their processes for assuring market data and will be subject to ongoing audit.

The review is currently at the planning stage so the exact impact on market data is not yet known. However, data changes arising from the project, may result in significant movements in the data reported in the A Tables in future years.

Scottish Water has continued to survey the occupancy status of properties. The returns show continuing issues with the recording of the occupancy status. While some of the properties concerned will be the duplicates referenced above, Scottish Water do not consider that all of the issues arising are due to duplication of properties.

Changes to reporting of Unmeasured non-household properties

Due to the end of the transitional phasing for meters installed during the Full Business Metering programme, the definition of measured and unmeasured non-household properties has changed.

The unmeasured properties reported in lines A1.3, A1.8, A1.14, A1.19, A1.25 and A1.32 for 2010/11 reflected those properties which remained on partial or fully unmeasured charges at that time. This included those properties which had been metered under Scottish Water's Full Business Metering installation programme, in addition to those which remain unmetered. Where a meter has been installed under the meter installation programme, wholesale charges at the property were subject to transitional phasing from unmeasured to measured charges between 2008/9 and 2010/11 as set out in the Wholesale Charges Schemes for those years. These properties were therefore still subject to partially unmeasured wholesale charges in 2010/11.

Transitional phasing came to an end on 1 April 2011 from which point the affected properties have moved onto fully measured charges. For the 2011/12 data, such properties have been moved from the unmeasured lines to the equivalent measured line. This leaves only properties which are unmetered, and therefore subject to fully unmeasured charges, in lines A1.3, A1.8, A1.14, A1.19, A1.25 and A1.32.

The summary table below shows 2011/12 property counts presented consistently with the 2010/11 Annual Return and on the revised basis as reported in the 2011/12 tables. The right-hand column shows the scale of the movement from unmeasured to measured lines resulting from this change.

			2011/12 Property Counts		
Line ref.	**Water services**	**Reported in 2010/11 Annual Return**	**Consistent with 2010/11 Annual Return classification**	**As reported for 2011/12 Annual Return**	**Movement from Unmeasured to Measured resulting from reporting change**
A1.3	Unmeasured non-household billed properties – water	47,463	49,421	20,216	-29,205
A1.4	Measured non-household billed properties - water	76,468	77,036	106,241	+29,205
A1.8	Unmeasured non-household connected properties - water	65,759	65,199	32,488	-32,711
A1.9	Measured non-household connected properties - water	89,119	87,261	119,972	+32,711
	Sewerage Services				
A1.14	Unmeasured non-household billed properties – sewerage	42,701	44,949	18,766	-26,183
A1.15	Measured non-household billed properties - sewerage	56,747	57,518	83,701	+26,183
A1.19	Unmeasured non-household connected properties - sewerage	59,312	59,497	29,978	-29,519
A1.20	Measured non-household connected properties - sewerage	67,607	66,581	96,100	+29,519
	Surface Water Drainage Services				
A1.32	Unmeasured non-household connected properties - surface water drainage	72,807	72,599	43,465	-29,134
A1.33	Measured non-household connected properties - surface water drainage	64,753	63,747	92,881	+29,134

The detailed commentary below is based on the movements in total measured plus unmeasured property counts.

Forecast data for 2012/13

Given the market and data uncertainties, forecast non-household data for the 2012/13 financial year has been derived using the growth factors from the Final Determination applied to the actual data for 2011/12. The growth factor of 1.6% has been applied to all property numbers. It should be noted that the 2012/13 forecast will differ from the data in the Final Determination as the starting position in 2011/12 has been revised to reflect actual data.

Non-household connected properties

The number of connected non-household properties taking water services has decreased by 2,418 to 152,460. Non-household properties taking sewerage services have similarly decreased by 841 to 126,078.

Line ref.	**Non-household connected properties**	**2010/11 Annual Return**	**2011/12 Annual Return**	**Variance**
A1.8 + A1.9	**Total connected non-household connected properties - water**	**154,878**	**152,460**	**-2,418**
A1.19 + A1.20	**Total connected non-household connected properties – sewerage services**	**126,919**	**126,078**	**-841**

These movements are the net effect of several initiatives. Projects run in conjunction with Licensed Providers over the last year have resulted in significant volumes of gap sites, properties receiving services but not included in billing records, being processed into settlement. In addition, there have been continuing new connections to the network. These increases in connected properties have been offset by the de-registration of properties found to be incorrectly in the market (for example duplicates, domestic and demolished properties) and by permanent disconnections.

The large number of de-registrations relates to the completion of data updates arising from the Vacant Property review project as mentioned in the commentary to previous years' Annual Returns.

The project reviewed all properties flagged as 'vacant' at the CMA, using an extensive programme of field visits by a 3rd party contractor to confirm the current status. Where a property was found either to be occupied or otherwise found not to be an eligible non-household premises, the data was updated accordingly at the CMA by the owner of the relevant data. These updates could include amending the occupancy status from 'vacant' to 'occupied' by the Licensed Provider or de-registration of the Supply Point from the market by Scottish Water in the event that it had been identified as duplicate, domestic, demolished, not receiving services or merged with another property.

As reported in the 2010/11 Annual Return commentary, the de-registrations of 6,366 properties taking water services and 6,756 properties taking sewerage services were still to be processed at the time of the 2010/11 Annual Return. Additional properties have been identified for de-registration since that time as a consequence of gap site project activity and the operation of the business-as-usual processes.

The summary table below shows the size of the various component movements in connected properties between the 2010/11 and 2011/12 Annual Returns.

Total connected non-household connected properties - water	
2010/11 Annual Return	**154,878**
+ Gap Sites	*4,121*
+ New Connections	*1,223*
- De-registrations & Physical Disconnections	*7,762*
2011/12 Annual Return	**152,460**

Non-household void properties

The number of void non-household properties taking water services in the table below has been derived by subtracting the reported billed properties from the connected properties. The number of void properties taking water services has dropped by 4,944 in the report year.

As noted above, the vacancy review project identified a significant number of properties previously flagged as 'vacant' at the CMA which were actually occupied or were not non-household properties. At the time that the September 2010 2nd Reconciliation took place, the corresponding data updates at the CMA were partially complete. Data updates have since been completed, resulting in a significant reduction in the number of vacant properties.

This reduction in vacant properties has been offset by routine changes in occupancy status by the registered Licensed Provider as a result of normal business activity. There continue to be issues with properties which are flagged as vacant at the CMA by the registered Licensed Provider but which Scottish Water is unable to agree are unoccupied. To address these ongoing concerns the Commission has approved the introduction of the Vacancy Charging

Administration Scheme with effect from 1 April 2012 to provide a mechanism for Scottish Water to challenge the occupancy status of properties where it has evidence to show that they are wrongly flagged as vacant at the CMA.

There has been a corresponding decrease of 3,860 in the number of void properties having sewerage services over the period for the same reasons.

Void properties	2010/11 Annual Return	2011/12 Annual Return	Variance
Total void properties – water	**30,947**	**26,003**	**-4,944**
Total void properties - sewerage	**27,471**	**23,611**	**-3,860**

Non-Household billed properties and wholesale revenue

As shown in the table below, there has been a slight increase in billed properties since last year's Annual Return of 2,526 for water and 3,019 for sewerage. As set out above, this is the net effect of occupied properties identified by the vacancy review project as being wrongly flagged as 'vacant' at the CMA, routine changes in occupancy status by the registered Licensed Provider, gap sites processed into settlement via recent project activity and routine connection and disconnection activity.

Line ref.	Water services - billed	2010/11 Annual Return	2011/12 Annual Return	Variance
A1.3 + A1.4	**Total billed Non-household properties – water**	**123,931**	**126,457**	**2,526**
A1.14 + A1.15	**Total billed Non-household properties - sewerage**	**99,448**	**102,467**	**3,019**

Household properties (connected and billed)

The data for these lines has been sourced directly from the WIC4 reports of September 2011 for report year. Report year +1 household growth is obtained directly from the final determination.

Outturn Growth

The growth in billed properties (including exempt) was 12,291. The growth in connected properties of 12,896 differs to the growth in billed properties as we are now billing properties which were, in the past, connected but not billed.

Line ref.		2010/11 Annual Return	2011/12 Annual Return	Variance
A1.1	Unmeasured household billed properties - potable water (including exempt)	2,369,860	2,382,151	12,291
	Number of void properties	45,782	46,387	605
A1.6	Unmeasured household connected properties	2,415,642	2,428,538	12,896

A1.1-5 Billed Properties - Water

A1.1 Unmeasured Household Billed Properties

The number of billed and exempt unmeasured household properties is sourced from the WIC4 and has increased by 12,291 as shown below:

Line ref.	Annual return (households)	Report Yr -1	Report Yr	Growth	Report Yr +1	Growth
	Total number of billed properties	2,306,419	2,319,031	12,612	2,331,220	12,189
	Number of exempt properties	63,441	63,120	-321	63120	0
A1.1	Total billed unmeasured households	2,369,860	2,382,151	12,291	2,394,340	12,189

From the above table, the total numbered of billed properties has increased by 12,291 which is slightly higher than forecasted in AR11. There has been a decrease in the number of exempt properties and an increase in the number of void properties. The number of exempt properties has reduced by 321 while the number of void properties has increased by 605. The report year plus 1 forecast assumes the number of exempt properties remains unchanged at 63,120.

As this information is sourced directly from the WIC4 reports, it has a confidence grade of A2 which reflects the quality of this external data.

A1.2 Measured household billed properties

The number of measured households has decreased by 18 customers compared with 45 customers in the previous year. This reduction is principally due to customers determining that Council Tax based charging is more economic. The confidence grade of A2 is consistent with previous year. The forecast for 2012-13 is based on the average movement over the last 2 years.

A1.3-4 Unmeasured and Measured non-household billed properties

The recorded number of billed non-household properties has increased by 2,526 to 126,457 compared with the 2010/11 Annual Return.

This movement was due to the combined effect of changes in occupancy status at Supply Points (either associated with the vacancy review project or routine updates by the registered Licensed Provider), new connections, gap sites, physical disconnections and de-registrations.

The movement of properties from A1.3 to A1.4 is the result of the reporting change mentioned earlier following the end of transitional phasing from unmetered to metered charges for properties included in the Full Business Metering installation programme.

Line ref.	Water services - (connected and billed)	2010/11 Annual Return	2011/12 Annual Return	Variance
A1.3	Unmeasured non-household billed properties – potable water (including exempt)	47,463	20,216	-27,247
A1.4	Measured non-household billed properties - potable water	76,468	106,241	29,773
	Total billed Non-household properties	**123,931**	**126,457**	**2,526**

A1.6-11 Connected Properties – Water

A1.6 Unmeasured Household Connected Properties

This figure is the cumulative total of billed properties, exempt properties and void properties which is sourced directly from the WIC4 reports and therefore given a confidence grade of A2. For the current report year, the void property total is 46,387.

A1.7 Measured household connected properties

The number of measured household connected properties is described in the commentary to line A1.2.

A1.8-9 Unmeasured and Measured non-household connected properties

The recorded number of connected non-household properties receiving water services has decreased by 2,418 to 152,460 compared with the 2010/11 Annual Return. As set out earlier, this is the net effect of additions and removals from the market including de-registration of Supply Points following the vacancy review project, physical disconnections, gap sites and new connections to the network.

The movement of properties from A1.8 to A1.9 is the result of the reporting change mentioned earlier following the end of transitional phasing from unmetered to metered charges for properties included in the Full Business Metering installation programme.

Line ref.	Connected Properties	2010/11 Annual Return	2011/12 Annual Return	Variance
A1.8	Unmeasured non-household connected properties	65,759	32,488	-33,271
A1.9	Measured non-household connected properties	89,119	119,972	30,853
	Total connected Non-household properties	**154,878**	**152,460**	**-2,418**

A1.11 Number of properties connected during the report year

The number of properties connected in the report year of 15,177, and is in line with the forecast figure. The number of properties connected in this report year shows an increase to the previous year of 2,404.

The confidence grade of A2 reflects the same systems and processes in place as the previous report year.

A1.12-16 Billed Properties – Foul Sewerage

A1.12 Unmeasured household billed properties

There has been growth of 10,984 unmeasured household billed properties for sewerage in the report year.

The confidence grade remains unchanged at A2

A1.13 Measured household billed properties

A decrease of 8 measured household properties is directly linked to the reduction in Measured Household properties having a measured water service.

The confidence grade of A2 has not altered.

A1.14-15 Unmeasured and Measured non-household billed properties

The recorded number of billed non-household properties receiving sewerage services has increased by 3,019 to 102,467 compared with the 2010/11 Annual Return. This movement was due to the combined effect of changes in occupancy status at Supply Points (either associated with the vacancy review project or routine updates by the registered Licensed Provider), new connections, gap sites, physical disconnections and de-registrations.

The movement of properties from A1.14 to A1.15 is the result of the reporting change mentioned earlier following the end of transitional phasing from unmetered to metered charges for properties included in the Full Business Metering installation programme.

Line ref.	Billed Properties	2010/11 Annual Return	2011/12 Annual Return	Variance
A1.14	Unmeasured non-household billed properties – sewerage	42,701	18,766	-23,935
A1.15	Measured non-household billed properties – sewerage	56,747	83,701	26,954
	Total billed Non-household properties	**99,448**	**102,467**	**3,019**

A1.17-22 Connected Properties – Foul Sewerage

A1.17 Unmeasured Household Connected Properties

Please refer to the commentary for line A1.6. For the current report year, the void property total is 44,678. The number of voids is calculated by subtracting A1.12 from line A1.17.

A1.18 Measured Household Connected Properties

Please refer to the commentary for line A1.13.

The confidence grade of A2 has not altered.

A1.19-20 Unmeasured and Measured Non-household connected properties

The recorded number of connected non-household properties taking sewerage services has decreased by 841 to 126,078 compared with the 2010/11 Annual Return. As set out earlier, this is the net effect of additions and removals from the market including de-registration of Supply Points following the vacancy review project, physical disconnections, gap sites and new connections to the network.

The movement of properties from A1.19 to A1.20 is the result of the reporting change mentioned earlier following the end of transitional phasing from unmetered to metered charges for properties included in the Full Business Metering installation programme.

Line ref.	Connected Properties	2010/11 Annual Return	2011/12 Annual Return	Variance
A1.19	Unmeasured non-household connected properties	59,312	29,978	-29,334
A1.20	Measured non-household connected properties	67,607	96,100	28,493
	Total connected Non-household properties	**126,919**	**126,078**	**-841**

A1.22 Number of properties connected during the report year

New properties connected have risen by 2,062 to 13,813; a description is provided in the commentary to A1.11.

A1.23-29 Billed Properties – Surface Drainage

A1.23 Unmeasured Household Billed Properties (including exempts) not billed for Property Drainage

Due to our tariff structure, there are no unmeasured billed properties not billed for property drainage.

A1.24 Measured Household Billed Properties not billed for Property Drainage

As per reporting year 2011/12 this value remains at 18.

A1.25-26 Measured and Unmeasured Billed Properties not billed for Property Drainage

There has been a small increase in properties not billed for Property Drainage since 2010/11. This is the result of the removal of Property Drainage charges at some properties, offset by changes to occupancy status. Under the Market Code, the application of property drainage to non-household properties is controlled by the Licensed Provider in the Central Market Agency's Central Systems.

Line ref.	Properties not billed for Property Drainage	2010/11 Annual Return	2011/12 Annual Return	Variance
A1.25	Unmeasured non-household billed properties not billed for property drainage	100	574	474
A1.26	Measured non-household billed properties not billed for property drainage	1,344	970	-374
	Total billed Non-household properties	**1,444**	**1,544**	**100**

A1.27 Household Billed Properties billed for Surface Drainage only

Due to our tariff structure, there are zero unmeasured billed properties not billed for surface drainage.

A1.28 Non-household properties billed for surface drainage only

The number of non-household properties billed for surface drainage only has decreased by 533 to 9,761 since 2010/11. This movement was due to de-registrations arising from the vacancy review project and changes in occupancy status at Supply Points by the registered Licensed Provider.

A1.30-34 Connected Properties – Surface Drainage

Line A1.31 shows a significant drop in billed customers from 693 to 447. This decrease of 246 customers is a direct result of the introduction of the Part-Residential charging guidelines. A policy was introduced within the Wholesale Market to determine how premises that are rated as both dwelling and businesses should be treated. This policy came into effect from 1st April 2011 and determines that any apportioned premises now sit entirely in the Wholesale Market and are subject to only Retail charges. Scottish Water has, effective from 1st April 2011 stopped billing apportioned premises its Roads Drainage charge and/or Property Drainage charge based on the Council Tax banding of said premises.

A1.32-33 Non-household Connected Properties – Surface Drainage

The recorded number of connected non-household properties connected for surface drainage has decreased by 1,214 to 136,346 compared with the 2010/11 Annual Return. As set out earlier, this is the net effect of additions and removals from the market including de-registration of Supply Points following the vacancy review project, physical disconnections, gap sites and new connections to the network.

The movement of properties from A1.32 to A1.33 is the result of the reporting change mentioned earlier following the end of transitional phasing from unmetered to metered charges for properties included in the Full Business Metering installation programme.

Line ref.	Properties connected for Surface Drainage	2010/11 Annual Return	2011/12 Annual Return	Variance
A1.32	Unmeasured non-household connected properties	72,807	43,465	-29,342
A1.33	Measured non-household connected properties	64,753	92,881	28,128
	Total connected Non-household properties	**137,560**	**136,346**	**-1,214**

A1.35 Number of properties connected during the report year

New properties connected have risen by 2,062 to 13,813; a description is provided in the commentary to A1.11.

The confidence grade remains at A2.

A1.36-39 Trade Effluent

A1.36 – Number of Billed Properties

The number of billed properties has reduced from 1,477 reported in AR11 to 1,425. In part this is due to the discontinuation of 28 Supply Point Identifiers (SPIDs) to which active discharge points (DPIDs) were attached. The number of discontinued SPIDs has increased from 18 last year. The actual number of DPIDs which should be billed is 1,453. The

reduction in billed DPIDs is a combination of Scottish Water moving smaller discharges onto Letters of Authorisation and there being more closures than new premises opening in the reporting period.

The forecast number of billed properties is 1,394. This is the number of properties that existed at P06 that were also billed at P012. Taking into account known closures and working on the assumption that the DPIDs affected by the discontinued SPIDs issue will eventually be brought back into charge, the correct number of DPIDs for the forecast year is 1,420.

The confidence grade for the report period and forecast is A2 and A3 respectively.

A1.37 – Connected Properties

The number of billed and connected properties has increased from 2,708 to 2,756. Whilst this is at variance with the reduction in the number of billed properties, it reflects the fact that Scottish Water continues to issue an increasing proportion of “Letters of Authorisation” to small dischargers, rather than full consents.

The forecast number of billed and connected properties is 2,766.

Note, these figures are not affected by the disconnection of SPIDs as the number is sourced from Scottish Water’s trade effluent system ICMS, which holds up to date information on all discharge points, regardless of whether they are billable or not.

The confidence grade for the current and forecast years remains unchanged for the current and forecast years.

A1.38 - Trade Effluent load receiving secondary treatment (BOD/y)

The total BOD load receiving secondary treatment reported has decreased from 22,592 to 20,882T/yr. Due to the issue with discontinued SPIDs, (A1.36 refers) the actual BOD load discharged is 20,922T/yr.

The forecast figure is static at 20,831T (20,870T for all DPIDs).

The confidence grade remains at B2 and B4 for the current and forecast years, as calculation of volumes is now done by LPs and not SW.

A1.39 - Trade Effluent load receiving secondary treatment (COD/y)

The reported total COD load receiving secondary treatment has decreased from 45,069 to 43,581T/yr. Again, this number is depressed due to the SPIDs issue, (A1.36 refers) with the true figure being 43,691T/yr.

The forecast is 43,478T/yr (43,588T for all DPIDs).

The confidence grade remains at B2 and B4 for the current and forecast years, as calculation of volumes is now done by LPs and not SW.

Table A2 Population, Volumes and Loads (Water)

A2.1 Population Water & Wastewater – Winter

Population data is based on General Register Office for Scotland (GROS) population projections for this year. There is an increase in winter population of 21,368 compared against the 2011 Annual Return reported position. Populations are derived from the published GROS 2008 based population projections.

A2.2 Population Water – Summer

To determine the increment of the summer population (above the winter population), a data set from Yell.com, as used for AR11, was used to identify properties which offer accommodation to visitors. To this was applied monthly occupancy for bed spaces supplied by Visit Scotland, with the reported population set at 2/3rds occupancy for the peak summer month. As the Yell.com data set for AR11 was used and both the AR11 and AR12 calculations apply 2/3rds occupancy for the peak summer month, the derived number for summer visitors of 171,921 is the same as that for AR11.

No change in the confidence grade has occurred in the year.

A2.3 Population of unmeasured household properties

The population of unmeasured household properties connected to our networks has increased by 23,587 for water, reflecting an increase in the total population and the proportion of households supplied by Scottish Water.

The confidence grade remains the same at A2.

A2.4 – Population of measured household properties

The population of measured household properties taking water services has decreased by 53, reflecting the decrease by 18 in the number of measured household properties reported in line A1.2.

The confidence grade remains the same at A2

Water Balance

A2.6 - 7 Water treated at own works to own customers & Distribution input treated water

These are both reported identically because Scottish Water does not supply treated water to any party other than direct customers of Scottish Water through the water distribution networks.

Distribution Input (DI) has reduced from 2,000.0 Ml/d to 1895.4 Ml/d principally due to a reduction in total leakage.

A number of improvement projects undertaken in AR11 have now been embedded in AR12, within the day to day running and reporting of DI to the business. These processes include:

- Establishment of the DI Estimation Model
- Confidence Grade dashboard enhancement
- Reporting of meter accuracy in terms of associated uncertainty error
- DI reporting to WOA level of granularity

- DI reporting down to site instrument level
- 2010 – 2015 Investment Programme for improvement including identification of meters for replacement, verification chamber installations and new metering installations.

In addition to the above, a number of other improvements to DI reporting have been undertaken in AR12

- Telemetry Data Quality Reporting
- Verification Report per Instrument

Recorded DI data is passed from telemetry, loggers and manual collection process to a data warehouse (Z-one) which stores flow data and asset information in conjunction with maintenance, verification and survey reports. This enables visibility of detailed flow information and thus confidence in the data provided.

DI is being reported with an improved B2 confidence grade. The availability of the measured flow data is reported at 99.2% compared with 96.7% reported at AR11.

A2.8 & A2.9 Bulk supply imports/exports

There are no bulk supply imports or bulk supply exports so these are again reported as 0 Ml/d with a confidence grade of N.

A2.10 Net Distribution input treated water (water put into supply)

The net DI is the same as the DI (line A2.7) as there are no bulk supply imports or exports.

A2.11 Unmeasured household volume of water delivered (including losses)

The Unmeasured household volume of water delivered has decreased from 841.9 Ml/d to 826.4Ml/d. This, resulted from a reduction in PCC of *circa* 1.4 l/head/day (line A2.27), with minor reductions in the estimated rate of internal plumbing losses and supply pipe losses per property. The confidence grade for this line remains at B2 reflecting the continued confidence associated with the SW unmeasured household volume calculated using data reported from Scottish Water's Continuous Area Per Household Consumption (PHC) Monitor.

During AR11, SW examined the use of PHC values for Water Balance (WB) calculations. The advantage of using PHC over the previous PCC methodology is that it removes the uncertainty associated with determining occupancy levels at both the company / zonal level and in each of the PCC zones, thereby increasing confidence in the assessment of Household Demand. PHC values are derived at a WOA level and integrated into enhanced PHC & WB models. The new PHC methodology has been adopted in AR12.

A2.12 Measured household volume of water delivered (including losses)

Measured household volume of water delivered has decreased slightly compared to the previous year. The percentage meter under-registration has decreased from 4.2% to 4.1%. The meter under-registration is taken as a mean from the 2007/08, 2008/09 and 2009/10 supporting information documents for the OFWAT Service and Delivery report.
The confidence grade reported for this line remains at B2.

A2.13 & 14 Unmeasured & Measured non-household volume of water delivered (including Losses)

The calculation of non-household consumption follows the same method as used for the 2010/11 Annual Return. Consumption data calculated by the Central Market Agency (CMA) has been used to populate lines A2.13 and A2.14. This means that the same data mart has been used as the basis to calculate consumption as used to calculate reported revenue.

For each settlement run, the CMA provides an aggregated settlement report which is used by Scottish Water for billing purposes and a disaggregated settlement report to enable reconciliation of wholesale charges by market participants. The data reported in lines A2.13 and A2.14 has been derived from these disaggregated settlement reports.

Table A2 has been populated using the latest available data at the time of reporting. For April to July 2011 inclusive the R3 report has been used, for August 2011 to January 2012 the R2 report has been used and for February and March 2012 the R1 report have been used.

A2.13 Unmeasured Non-Household Consumption

The reported unmeasured non-household volume of water delivered has increased from 17.1 in 2010/11 to 20.3 Ml/d in the report year.
The consumption in line A2.13 relates to Supply Points which are unmetered and reflects assessed consumption derived from the Ratable Value.

There has been a significant drop in the number of reported unmeasured properties in lines A1.3 and A1.8 which are used to populate the property counts below. These drops have been offset by a corresponding increase in measured properties reported in lines A1.4 and A1.9 and relates to a change in the definition of measured and unmeasured non-household properties arising from the end of transitional phasing for meters installed during the Full Business Metering programme.

The unmeasured properties reported in lines A1.3 and A1.8 for 2010/11 reflected those properties which remained on partial or fully unmeasured charges at that time. This included those properties which had been metered under Scottish Water's Full Business Metering installation programme, in addition to those which remain unmetered. Where a meter has been installed under the meter installation programme, wholesale charges at the property were subject to transitional phasing from unmeasured to measured charges between 2008/9 and 2010/11 as set out in the Wholesale Charges Schemes for those years. These properties were therefore still subject to partially unmeasured wholesale charges in 2010/11.

Transitional phasing came to an end on 1 April 2011 from which point the affected properties have moved onto fully measured charges. For the 2011/12 data, such properties have been moved from the unmeasured lines to the equivalent measured line. This leaves only properties which are unmetered, and therefore subject to fully unmeasured charges, in lines A1.3 and A1.8. The unmeasured consumption used in the Water Balance has only ever related to those properties which are unmetered. Consumption at those properties which have been subject to transitional phasing and which have moved from lines A1.3 and A1.8 to A1.4 and A1.9 respectively has always been reported in measured non-household consumption,

Of the 47,451 properties reported as unmeasured in AR11, 18,158 were unmetered with the remainder being metered properties subject to transitional phasing. The number of unmetered properties has increased by 2,058 to 20,216 since AR11 which is the net effect of occupied properties identified by the vacancy review project as being wrongly flagged as 'vacant' at the CMA, routine changes in occupancy status by the registered Licensed

Provider, gap sites processed into settlement via recent project activity and routine connection and disconnection activity.

The reported unmeasured consumption is as calculated by the CMA and, in most cases, is derived from the Rateable Value for the property using the formula defined in the Wholesale Charges Scheme. Rateable Value is an LP-owned data item in the CMA systems. Data cleanse activity by Licensed Providers to correct zero, default and missing Rateable Values has resulted in an increase in the mean for these properties from £8.5K to £10.1K since AR11.

The increase in unmeasured volume from AR11 is therefore the result of the increase in unmetered properties as mentioned above as well as a general increase in Rateable Value of the base arising from data cleansing activity.

	AR09	**AR10**	**AR11**	**AR12**
Occupied and exempt properties	53,920	46,957	47,451	20,216
Consumption	31.00 Ml/d	14.42 Ml/d	14.80 Ml/d	19.13 Ml/d
Underground supply pipe leakage	48.43 l/prop/d	34.39 l/prop/d	29.67 l/prop/d	29.71 l/prop/day
Underground supply pipe leakage	2.61 Ml/d	1.61Ml/d	1.41 Ml/d	0.60 Ml/d
Water delivered	**33.61 Ml/d**	**16.03 Ml/d**	**16.21 Ml/d**	**19.73 Ml/d**
Void properties (vacant)	25,925	27,239	18,282	12,272
Internal plumbing losses (voids)	11.93 l/prop/d	11.40 l/prop/d	11.05 l/prop/d	10.68 l/prop/d
Underground supply pipe leakage (voids)	51.83 l/prop/d	39.72 l/prop/d	34.94 l/prop/d	34.23 l/prop/d
Internal plumbing losses (voids)	0.31 Ml/d	0.31 Ml/d	0.20 Ml/d	0.13 Ml/d
Underground supply pipe leakage (voids)	1.34 Ml/d	1.08 Ml/d	0.64 Ml/d	0.42 Ml/d
Water delivered to void (vacant) properties	**1.65 Ml/d**	**1.39 Ml/d**	**0.84 Ml/d**	**0.55 Ml/d**
Total line A2.13 unmeasured non-household volume	**35.26 Ml/d**	**17.42 Ml/d**	**17.05 Ml/d**	**20.28 Ml/d**

A2.14 Measured Non-Household Consumption

The consumption in line A2.14 reflects the actual consumption recorded at metered Supply Points plus an element for meter under registration (line A2.30). The metered volume has decreased slightly from 400.98 Ml/d in 2010/11 to 389.94 Ml/d in the current reporting year; the total water delivered for AR12 is 408.53 Ml/d, compared with 419.79 M/d in AR11.

Derivation of Consumption from CMA Settlement Reports

Volumetric wholesale charges are applied at the CMA via the calculation of an Estimated Weighted Average (EWA) unit rate for each Supply Point at each settlement run. This is replaced with an Actual Weighted Average unit rate at Final Reconciliation.

In certain circumstances, generally as a result of issues with a meter reading or technical data, negative consumption can be calculated at meters. A related issue is the calculation of a EWA value of zero in certain circumstances relating to large negative historical consumption.

Consumption has been included in the A tables wherever it is a positive value at a Supply Point which is occupied. Where the calculated consumption is negative, this is substituted with an estimated consumption using the same methodology as is applied by the CMA in the absence of meter readings at a Supply Point. In the first instance, the Licensed Provider's Yearly Volume Estimate (YVE) is used if available. In the absence of an YVE value, the industry standard consumption for that meter size is used.

The A tables report consumption at occupied properties only with the exception of the adjustment described below which is applied in relation to estimated consumption at properties wrongly flagged as vacant at the CMA.

Other Adjustments to Billed Consumption

A number of additional adjustments are also applied to convert billed consumption into delivered potable water.

There are a number of non-household customers receiving non-potable supplies. Consumption at these Supply Points is reported separately in line A2.26 and is therefore excluded from line A2.14.

The supply of shipping water at Queen's Dock in Aberdeen is not supplied via a Licensed Provider and not included in the CMA's settlement reports. The water supplied is potable and is therefore included in line A2.14.

Additional adjustments have been made at a small number of Supply Points where erroneous consumption has been identified, usually due to either a faulty meter or spurious meter readings. In both cases, the adjustment reflects the expected consumption following correction of the issue which will include amendment of data at the CMA and, in some cases, repair or replacement of the meter. These adjustments are consistent with provisions and accruals made for revenue forecasting purposes.

A2.15 Water taken unbilled – legally

The volume reported as water taken legally unbilled (WTLU) has increased from 50.7 Ml/d in 2010/11 to 55.79 Ml/d in this report year. The confidence grading remains at C4 due to the nature and estimation of the volume reported. The methodology has remained the same for the majority of components. The main reasons for the changes in volumes are as follows:

- Increase in fire service use (from 13.3 Ml/d to 13.5 Ml/d); the same methodology has been used as the previous year, the change is due to changes in the number of fires, fire crews and fire service vehicles reported by the Fire Service.

- Increase in licensed standpipe use (from 14.2 Ml/d to 15.7 Ml/d); there has been an increase in the number of standpipe licences issued and an increase in the estimated volume used per license, which has increased the total volume associated with this component.

- Increase in WWTW from 9.1 Ml/d to 12.2Ml/d. This year the figure has been calculated solely on logger data from WWTWs covering various treatment types and sizes, which account for 56% of the population equivalent (PE). From this data, an

average volume per PE served per day is calculated for each treatment type and applied the WWTW where logger data was not available.

- No movement in Scottish Water Offices and Depots use (remaining at 0.1 Ml/d); the same methodology has been used as last year.

- There has been a small increase in Scottish Water Jetting volumes from 1.20 Ml/d to 1.24 Ml/d this is due to an increase in the number of events that required having chokes cleared by jetting.

- A very slight decrease in unbilled field trough usage (from 11.6 Ml/d to 11.5 Ml/d); the number of fixed charge field troughs has reduced from 11,455 in AR11 to 11,273 in AR12. This has resulted in a reduction in the overall volume of water used by unbilled field troughs.

- An increase of water used for temporary building connections from 1.2 Ml/d to 1.5 Ml/d. The methodology applied is the same as the previous reporting year the increase is due an increase in the assumed average volume per house build and also in the number of properties connected to the water network. The figure is included as WTLU because developers are billed for a construction licence rather than for a volume of water.

A2.16 Water taken unbilled – illegally

The volume of water reported as water taken illegally unbilled (WTIU) has fallen from 2.2 Ml/d in 2010/11 to 1.4 Ml/d in the reporting year.

The confidence grade has remained at C4 due to the nature and estimation of the volume reported. The data sources and methodology used to calculate this component have remained the same.

- Void property use – the volume has remained unchanged at 0.7Ml/d

- Hydrant misuse - the number of events was lower in AR12 compared to AR11 and the estimated volume per event has been re-estimated based on events in AR12, which has resulted in a 0.6 Ml/d reduction in volume to 0.4 Ml/d.

- Illegal standpipes - the volume has decreased from 0.5 Ml/d to 0.3 Ml/d due to a reduction in the number of illegal standpipes reported. The campaign initiated in AR08 aimed at minimising unlicensed standpipe use has continued.

A2.17 Water take unbilled – Distribution System Operational Use (DSOU)

The volume of water reported as Distribution system operational use (DSOU) has decreased from 6.0 Ml/d in 2010/11 to 4.3 Ml/d in this reporting year. The confidence grade remains at C3 due to the nature and estimation of the volume reported. The changes in volumes can be explained as follows:

- Service Reservoir Cleaning – the volume has increased slightly from 0.3 Ml/d to 0.4 Ml/d. The methodology used is the same as the previous year. The list of service reservoirs cleaned and the volume of water discharged continues to be provided by the regional Leakage Delivery teams.

- Mains Rehabilitation & New Mains - the volume used has decreased from 0.7 Ml/d to 0.1 Ml/d; this is due to a change in estimation of volumes used for different rehabilitation methods, as agreed with the Capital Investment Delivery department.

- Proactive Flushing & Swabbing - the volume of water has decreased from 3.5 Ml/d to 2.2 Ml/d in this reporting year; the methodology is the same as the previous year. The reduction is due to lesser requirements to flush the network in order to maintain supply to customers or prevent water quality issues.

- Burst Repairs / Other Network Interruptions – the methodology applied is the same as the previous year; the volume has remained constant at 0.5 Ml/d.

- Reactive Water Quality Incidents – the methodology applied is the same as the previous year; the volume has remained constant at 1.0 Ml/d.

- Planned Water Quality Sampling – the volume reported remains constant at 0.1 Ml/d; there has been no change in methodology.

A2.18 Net Consumption (including supply pipe losses)

Net consumption has dropped from 1338.0 Ml/d to 1317.0 Ml/d, the confidence grade remains at B3. The reduction in volume is mainly due to a reduction in volume of lines A2.11 (water delivered to unmeasured households), A2.14 (water delivered to measured non-households) although it is offset by increases in lines A2.15 (Water taken legally unbilled) and A2.13 (water delivered to unmeasured non-households.

A2.19 Distribution losses (including trunk mains and reservoirs)

Distribution losses have reduced from 662.1 Ml/d in AR11 to 578.5 Ml/d in AR12 due to continuing leakage reduction activity.

The confidence grade for this line remains B3.

A2.20 Customer supply pipe losses

Customer supply pipe losses have reduced slightly in year from 94.8 Ml/d in AR11 to 82.2 Ml/d. This is largely due to a reduction in the number of supply pipe bursts found through ALC and a higher percentage of those found being fixed. In addition to this, we have amended our methodology to estimate this component, to take into account reported supply pipe bursts and a leakage volume for supply pipe bursts that were found and fixed by Scottish Water. Without this change in methodology the reported number would have reduced further in comparison with the AR11 reported figure.

The confidence grade for the average rate of loss through supply pipes remains at C3.

A2.21 Overall water balance

The confidence grade for the overall water balance remains at B3 as there have been no significant changes in methodology compared to the previous year.

Leakage

A2.22 Total Leakage (pre-MLE Adjustment)

The 'Total Leakage' by definition within the guidance documentation is considered by SW to include summing the DMA reported leakage, Service Reservoir leakage and Trunk Main leakage. The coverage of reportable DMAs has increased from 85.9% to 89.5% by property coverage. DMA leakage has reduced from 653.4 Ml/d in AR10 to 576.9 Ml/d in the current reporting year. Service Reservoir leakage has reduced by 0.9 Ml/d to 8.3 Ml/d whereas Trunk Main leakage has increased very slightly from 30.7 Ml/d to 32.0 Ml/d. Overall there is a reduction in total leakage from 693.4 Ml/d in AR10 to 617.2 Ml/d in AR12. The confidence grade for this line remains at B3.

A2.23 Water Balance Closing Error

The Water Balance Closing Error is the difference between the top down and bottom up leakage figures expressed as a percentage of net DI. The closing error has reduced from 3.2% in AR11 to 2.3% for AR12.

A2.24 MLE Adjustment

The MLE adjustment for AR12 is 12.0 Ml/d. The overall AR12 MLE calculation is associated with the appropriate MLE confidence grades (mid point of WICS CGs), being assigned to water balance components in line with WICS own CGs.

The confidence grade for this line is B3.

The increase in the MLE adjustment in comparison with AR11 is in part due to the increase in confidence in Distribution Input (DI) from 7.5% to 3% (mid points of the confidence bands). This is based upon the DI uncertainty for measurement being calculated to now be below 5% across Scotland.

A2.25 Total Leakage (post-MLE Adjustment)

Where the water balance reconciliation error between top down and bottom up leakage is less than 5% of DI, this is accepted as an indicator of a robust water balance. In such circumstances, a MLE statistical calculation is then undertaken to determine the leakage figure to be reported. If the reconciliation error is > 5% of DI, then the top down leakage figure will be reported.

In recent years the trend in leakage reduction is:

Report Year	Top Down Leakage (Ml/d)	Bottom Up Leakage (Ml/d)	MLE Leakage (Ml/d)
AR05	1,139		
AR06	1,104		
AR07	1,004		
AR08	924		
AR09	868	776	816
AR10	783	705	738
AR11	757	693	699
AR12	661	617	629

The AR12 Maximum Likelihood Estimation (MLE) leakage is 629.2 Ml/d and is reported with confidence grade B3. This is a reduction of 69.9 Ml/d from the AR11 MLE leakage figure of 699.1 Ml/d.

Water delivered – non-potable

A2.26 Volume of non-potable water delivered

Nine non-household customers receive non-potable water supplies. Most of these Supply Points are subject to Schedule 3 charging arrangements.

The volume reported in line A2.26 reflects the consumption calculated by the CMA for the following Supply Points which receive non-potable supplies; some of these supply points have multiple meters.

Supply Point ID	Meter Serial Number
101119750150	98W00006
101122290109	90M000404
101122290109	97W021741
101143770105	V20752/7/1
101797540101	06W302847
101797540101	94W024603
101797540101	K99A816211
200003570104	V/20784/8/7
101202540150	K02A246800
101202540150	K03W022848
101653530150	03M362847
101653530150	04H000160
200000400101	08AQUAMASTG/16297/2/5
101199770101	05H300704
101199770101	05M120383

A further estimated volume of 9.09 ML/day is added to the above consumption which is for the Buckieburn Farm and Freshwater Research Unit. This volume has been extrapolated from their website as in the absence of further information.

http://www.fishresearch.co.uk/facilities/niall_bromage_freshwater_research_unit

Further investigations are being undertaken by Scottish Water to confirm their acutal usage.

Water delivered – components

A2.27 Per capita consumption (unmeasured h/hold – excl s/pipe leakage)

The PCC figure for AR12 is 150.0 l/head/day, compared with an AR11 reported figure of 151.4 l/head/day.

The confidence grade remains at B2.

A2.28 Per capita consumption (measured h/hold – excl s/pipe leakage)

The calculation remains unchanged from the previous reporting year. There is a decrease in volume from 241.2 l/head/day in AR11 to 210.0 l/head/day in AR12. This is due to a decrease in the billed measured household volume and a reduction in the number of billed household properties.

The confidence grade remains at B3.

A2.29 Meter under-registration (measured households) (included in water delivered)

Scottish Water has derived meter under-registration from the mean value between 2007/08 and 2009/10 from the supporting information document for the OFWAT Service and Delivery Supporting Information Reports. Meter under-registration has decreased slightly from 4.2% to 4.1%. When applied to the domestic metered volume the total measured household meter under-registration is 0.009 Ml/d.

A2.30 Meter under-registration (measured non-households) (included in water delivered)

The 2007/8, 2008/09 and 2009/10 OFWAT 'Service and Delivery' supporting information documents have been used to derive a mean figure for non-household meter under-registration, which increases slightly to 4.7%. The slight decrease in the meter under-registration volume from 18.4 Ml/d to 18.2 Ml/d is due to a decrease in the volume of water delivered to measured non-households.

Some meter accuracy tests are currently being undertaken on a sample of meters in order to inform targeting of meter capital replacement. This data will is also likely to improve understanding of meter under-registration figures.

Table A3 Population, Volumes and Loads (Waste water)

A3.1-A3.4 Summary – Population

A3.1 Population Water & Waste – Winter

Population data is based on General Register Office for Scotland (GROS) population projections for this year. The winter population for waste has been calculated differently for this year's Annual Return following the recommendation from the reporter to separate this out from the figure reported under A2.1.

A3.2 Population Waste – Summer

To determine the increment of the summer population (above the winter population), a data set from Yell.com, as used for AR11, was used to identify properties which offer accommodation to visitors. To this was applied monthly occupancy for bed spaces supplied by Visit Scotland, with the reported population set at 2/3rds occupancy for the peak summer month. As the Yell.com data set for AR11 was used and both the AR11 and AR12 calculations apply 2/3rds occupancy for the peak summer month, the derived number for summer visitors of 107,568 is the same as that for AR11.

The confidence grade remains the same at A2

A3.3 Household Population connected to the wastewater service

The population of unmeasured household properties connected to our networks has increased by 20,158 for wastewater.

A3.5-A3.11 Sewage - Volumes

A3.5 Unmeasured household volume (including exempt)

The unmeasured household volume has decreased from 685.47 Ml/d to 682.14 Ml/d. The slight decrease in the waste volume is a result of the decrease in PCC reported in the year.

The confidence grade has remained at B3.

A3.6 Measured household volume

The measured household volume has slightly decreased to 0.027 Ml/d in the report year.

The confidence grade remains at A2.

A3.7 Unmeasured non-household foul volume (including exempt)

The increase of 3.7Ml/d follows a similar increase in the unmeasured non-household water volume at line A2.13 which is a result of an increase in un-metered properties as well as a general increase in Rateable Value of the base arising from data cleansing activity.

The confidence grade remains at B3.

A3.8 Measured non-household foul volume

The total volume of foul waste from measured non-households has decreased from 140.826 Ml/d to 139.195 Ml/d. This may be indicative of the current economic climate.

The confidence grade remains at B3.

A3.9 Trade Effluent Volume

The volume of trade effluent discharged has increased from 88.843Ml/d to 91.452Ml/d. This figure is the volume associated with the DPIDs billed at P06 and doesn't take into account the disconnected SPIDs issue. Scottish Water is no longer in control of the calculation of volumes as this is done by Licensed Providers and passed to SW by the CMA. Volumes reported this year are taken from the latest available reconciliation run from the CMA for the reporting period. For DPIDs which haven't been billed by the CMA we have used in order of preference, volumes submitted by the LP for the DPID for the reporting period (the CMA system accepts these volumes even though the DPID doesn't appear on reconciliation runs), or the process for calculating the Annual volume estimate sent to the CMA when the DPID is initially set up, which is 200 times the Consented daily volume.

The confidence grade remains at B2 and B4 for the current and forecast years, as calculation of volumes is now done by LPs and not SW.

A3.10 Total Volume

The confidence grade remains at B3.

A3.11 Volume septic tank waste

The volume of septic tank waste decreased from 30.422Ml to 25.112Ml over the reporting period. This is a consequence of less sludge received at sewage treatment works and instead received directly at sludge treatment centres.

As there has been no change to the methodology used the A3 confidence grade is unchanged from last year.

A3.12-A3.26 Sewage Load (BOD/yr)

A3.12- A3.13 Unmeasured and measured household load

The household load reported is based on household occupancy multiplied by 60g per head per day.

No significant change has occurred from the prior year and the confidence grade remains the same.

A3.14-A3.15 Unmeasured and measured non-household load

The non-household load is derived as 300g/m^3 applied to the volumes of sewage reported in lines A3.7 and A3.8.

No significant change in the process has occurred and the confidence grades remain the same as the prior year.

A3.16 Trade effluent load

The total BOD load discharged to the network has decreased from 25,654T to 22,525T.

The confidence grade remains at B2.

A3.18-A3.21 Septic tank loads

The reported septic tank loads (lines A3.18 and A3.19) are derived by applying an assumed load of 6,543g/m^3 to the volumes removed from private and public septic tanks respectively.

There is no significant change in the Private Septic Tank Load reported in line A3.18.

The Public Septic Tank Load reported in line A3.19 reduces from 76.558t to 41.013t and the Other Tanker Load reported in A3.20 reduces from 163.906t to 123.752t. This is a consequence of less sludge received at sewage treatment works and instead received directly at sludge treatment centres.

The confidence grade remains at B3.

A3.22 Average COD concentration

The average settled COD concentration used to calculate Trade Effluent charges continues to be 350mg/l.

No significant change has occurred and the confidence grade remains the same as the prior year.

A3.23 Average suspended solids concentration

The average suspended solids concentration used to calculate Trade Effluent charges continues to be 250mg/l.

No significant change has occurred and the confidence grade remains the same as the prior year.

A3.24 Equivalent population served (resident)

The figure in A3.24 is the total load divided by 60g, which equates to the equivalent population and has not significantly changed from the prior year.

No significant change has occurred and the confidence grade remains the same as the prior year.

A3.25 Equivalent population served (resident) (numerical consents)

The figure in A3.25 is the total load divided by 60g which equates to the equivalent population (representing works that have a numerical consent).

No significant change has occurred and the confidence grade remains the same as the prior year.

A3.26 Total load receiving treatment through PPP treatment works

In the report year a slight reduction from 67,448t to 66,669t was observed.

No significant change has occurred and the confidence grade remains the same as the prior year.

A3.27-A3.29 Sewage Sludge Treatment and Disposal

The reported mass of sewage sludge recycled was 133.789 ttds, of which the majority came from the PPP/PFI works (113.759 ttds). As with AR11 all the SW figures reported were taken direct from the Gemini system. As in previous years we have retained the existing confidence grade.

For the SW sludge a small overall increase in the volume of enhanced treated sludge was noted, 0.229 ttds. Increased volumes were recorded at Perth, 0.633 ttds, Stornoway and Orkney with Dunfermline and Kinneil Kerse conversely showing decreased quantities. Conventional sludge production was raised by 1.546 ttds from the previous year. This reflects increased import volumes at Dalderse and the commissioning of the lime stabilization plant at Troqueer giving a product suitable for agricultural use and subsequent reduction in composted sludge from this site.

Dunfermline had 0.0886ttds recycled to land restoration over the reporting period.

A marginal decrease, 0.0129 ttds was recorded in sludge taken to landfill in 2011/12.

No significant change has occurred and the confidence grade remains the same as the prior year.

E Tables – Operating Costs and Efficiency

General Comments

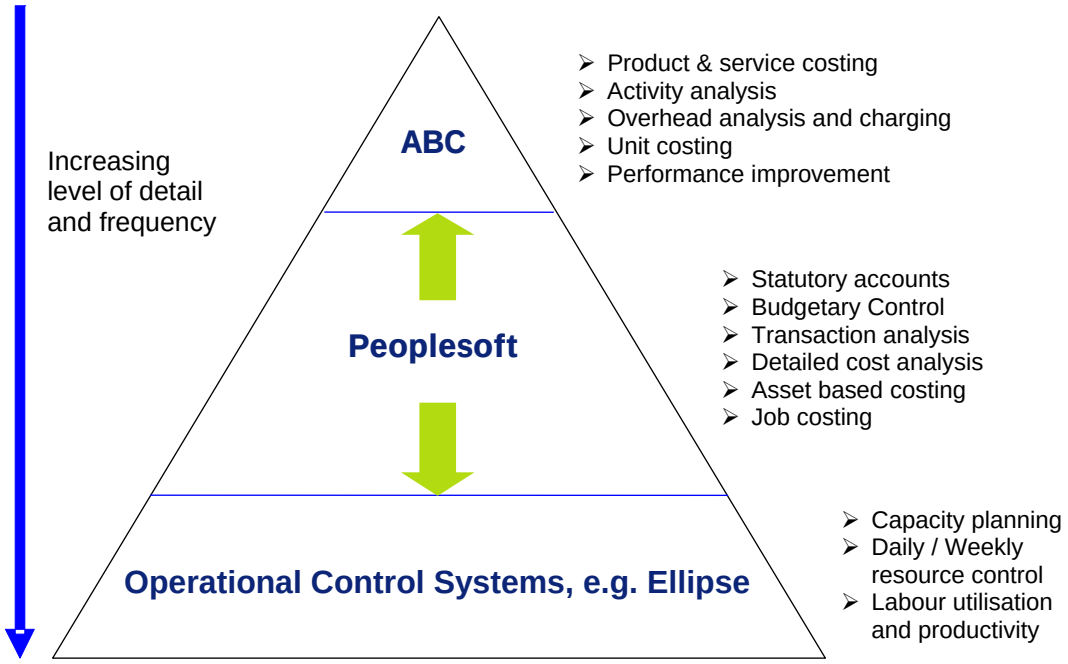
Methodology & Cost Allocation

Cost analysis in E Tables (E4, 6-10) was prepared using reports from Scottish Water's Activity Based Management (ABM) systems.

ABM provides analysis of the costs of key activities and processes, and links these to the factors that cause or drive our level of cost. This allows us to develop an understanding of the full cost of providing services, either internally within Scottish Water, or to our external customers.

Scottish Water has built an ABM toolkit founded upon consistent principles which apply across some key core systems and processes.

Activity Based Management data (financial and non financial) is captured in various corporate systems. The key systems which provide ABM analysis for E Tables are:

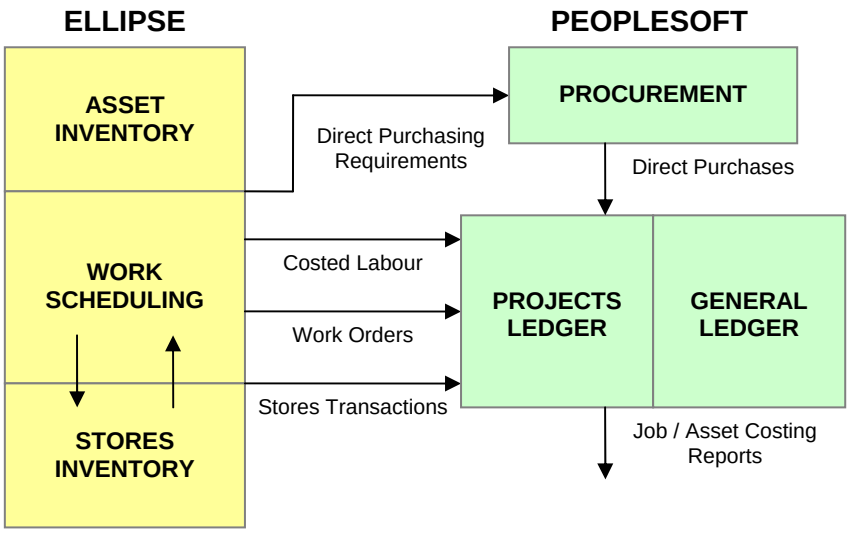


System	ABM Process Overview
Ellipse Works & Asset Management System	Ellipse is used to hold Scottish Water's Asset Inventory and to manage operational activity by individual job (work order), activity and asset. Time spent working on work orders is captured in Ellipse via timesheets, integrated mobile devices or laptops. Material issued to jobs from Stock is also captured by work order.

	Time and materials are then costed and interfaced to the Peoplesoft Financial System on a daily basis. See Overview diagram below.
Peoplesoft Financial & Procurement System	Peoplesoft is Scottish Water's primary financial and procurement system. The key modules utilised by Scottish Water are Procurement, Accounts payable, Projects, Timesheets, Billing, Accounts Receivable, General Ledger & Fixed Assets. Accounting separation within the Scottish Water group of companies has been enabled within Peoplesoft. Business Units are the highest level entity in Peoplesoft and are used to securely separate data and access to data and processes. Separate Business Units have been used to separate Scottish Water Horizons from Scottish Water, and in turn from Scottish Water Solutions. Cross-business unit transactions can only be made via inter-company invoicing. Within Scottish Water capture of activity based information within Peoplesoft has been maximised through the set up of our coding structure, systems and processes. Cost codes have been set up within Peoplesoft to capture and sub-analyse costs by: o Individual work order; o Individual asset; o Each capital or non regulated project; o Each support department; and o Expense subjective (account). All costs are held in Peoplesoft, and costed either directly through Peoplesoft Procurement or operational costing through the Ellipse-Peoplesoft interface. Peoplesoft, therefore, provides comprehensive costing analysis, on a monthly basis, of the costs directly attributable (including some key support activity recharges) to each team, asset, zone, project, service and job.
Hyperion Activity Based Costing (ABC) System	In 2011/12 the Metify ABC system was replaced by Hyperion. Hyperion integrates ABC with budgeting and activity based performance reporting. The Profitability and Cost Management (PCM) module within Hyperion provides the ABC system functionality previously provided by Metify ABC. Hyperion PCM is an ABC system structured around Scottish Water's key (c.300) activities. ABC is run

	periodically (typically half-yearly) to cover all profit and loss expenditure. Peoplesoft feeds total expenditure directly into Hyperion. Where activity splits have already been captured, e.g. Ellipse effort by activity / asset, these are also fed directly into Hyperion. Costs are analysed by activity and for each activity a non financial driver is captured. The non financial driver is the measurable factor which drives activity cost, or the level of resource consumption. In Hyperion these drivers are used to allocate costs to services. Output from Hyperion provides analysis of the full cost of services. These services have been structured to match E & M Table activity classifications, and therefore Hyperion output directly feeds these tables. Non financial driver data is collected from a variety of corporate systems and input to Hyperion.
Driver Data Systems	Examples of systems and drivers are: o LIMS – Lab tests processed and samples taken; o Oracle CRM – Customer calls and written contacts; o Gemini – Waste movements; o Ellipse – Number of jobs, man hours, stores issues, etc; and o Peoplesoft – Number of invoices, purchase orders, customer bills, man hours.

Ellipse / Peoplesoft Integration



Cost Allocation

Costs are captured or allocated in line with Regulatory Accounting Rules.

Transfers between Separate Entity Associates

Transfers between our separate legal entities are invoiced in accordance with specified Service Agreement prices or Contracts. The prices in these agreements are in accordance with Regulatory Accounting Rules on Transfer Pricing, and prices reflect the full cost of providing the service to the entity. Activity Based Management output has been used extensively in determining the costs which should be included in transfer prices.

Transfers to Non Regulated Activities

Scottish Water Horizons Limited (SWH) along with Scottish Water International (SWI) are responsible for the majority of the Scottish Water Group's Non Regulated activities. Transfers to Non Regulated activities are undertaken as described in the section above "Transfers between Separate Entity Associates".

A residual number of Non Regulated activities remain within Scottish Water. These are activities which are incidental or integral to the regulated business activities. For example, rechargeable works on core assets, and use of laboratory services for third party sampling and analysis.

Within Scottish Water, Non Regulated activity is separately reported in a Non Regulated ledger tree within Peoplesoft. Non regulated costs are either directly captured and reported in the Non Regulated ledger tree, or are charged to Non Regulated through cost recharges.

Operational Staff working on Non Regulated activities, e.g. rechargeable works, charge costs to Non Regulated through Ellipse work orders as described in the methodology section.

Support cost recharges for Fleet, IT and Property are transferred on a regular basis, to reflect actual consumption of support costs. A further cost recharge is made on top of this, to cover areas, which are not regularly recharged. These recharges are made on the basis of half-yearly ABC analysis.

Capitalisation Policy

Scottish Water has applied a consistent policy to capitalisation and ensures compliance with UK Generally Accepted Accounting Practices (UKGAAP). The main points of the policy are:

> Fixed assets are tangible items for the delivery of services and the provision of support activities. Assets are utilised by Scottish Water for a number of years and are not for resale.
>
> Tangible fixed assets have physical substance and are held for use in the production or supply of goods and services. Capital assets are expected to generate future revenue for the company or are used in the business and are not for resale.
>
> Tangible fixed assets, whether purchased or constructed, are recorded at cost. Cost comprises all directly attributable costs, including internal costs, such as the cost of time spent on the construction of the asset by project engineers/ planners, which are incremental to the delivery of the Scottish Water capital expenditure programme. Cost does not include any allocation of administrative or general overheads and specifically

excludes abnormal costs relating to, for example, inefficiencies, wastage and costs associated with operational problems encountered after asset commissioning.

Costs associated with a start-up or commissioning period are capitalised but *only* where the asset is available for use but *incapable* of operating at normal levels without such a period of commissioning. Costs associated with operating assets which are running at below normal operating levels after start-up/ commissioning are not capitalised.

The capitalisation policy provides guidance notes and examples on distinguishing between operational and capital expenditure. With specific reference to expenditure relating to reactive and leakage activities, specific definitions and examples are included in the capitalisation policy. In addition, financial controls are in place to review expenditure relating to reactive and leakage activities.

Reactive Capital Expenditure

In general terms, infrastructure reactive activities can be capitalised where there is replacement of discrete lengths of mains or sewers, usually no less than 3 metres. The work must represent a permanent solution to a fault or deficiency in the network. Costs associated with clearing blockages or the use of a collar on a burst main are not capitalised but are charged to opex.

Reactive non infrastructure capital expenditure includes the replacement of an asset at the end of its useful life such as pumps, filters, screen. In addition, costs associated with a complete asset overhaul, the results of which extend the asset life for a number of years can be capitalised under either reactive or planned capital expenditure. Expenditure relating to the repair or replacement of a component of an asset, e.g. the replacement of a bearing, are not capitalised but charged to opex.

Expenditure on Leakage

Expenditure on leakage is predominantly allocated to operational expenditure since much of the activity relates to either operational intervention or investigative work. However, the replacement of discrete lengths of mains, usually no less than 3 metres, installation of valves and meters are capitalised.

Wholesale Cost Allocation by WICS Activity

Scottish Water's coding structure follows Regulatory Activity classifications, i.e. Water Treatment, Water Distribution, etc. by individual asset.

The majority of operational costs are directly captured against the individual assets, either by direct charging, e.g. Power, Chemicals, or through Ellipse work orders as described in the Methodology section, e.g. labour costs. In 2011/12 81% of costs, directly attributable to wholesale assets, were charged to assets. The shortfall against 100% was due to some gaps in labour costing. These gaps are addressed, for the purposes of regulatory reporting, via activity analysis undertaken with team leaders.

Fleet inventory costs are recharged to teams on a regular basis, and ABC then calculates the fully allocated costs of wholesale activities, including all support activity costs based on actual activity costs and driver volumes.

Trading Results & Reconciliation

Scottish Water Business Stream Limited (Business Stream) is a fully owned subsidiary of Scottish Water Business Stream Holdings. Scottish Water produces consolidated accounts incorporating the results of Business Stream. However E & M18 table financials are produced for Scottish Water Regulated and Non Regulated activity, excluding Business Stream.

To aid comparison, the table below summarises Scottish Water consolidated results, Scottish Water company, Scottish Water Horizons and Scottish Water International results.

SW Group Statutory Accounts

		£m	£m
Cost of Sales		718.7	
Admin Expenses		125.5	
SW Group Expenditure			**844.2**
Less	Business Stream		(40.2)
	IFRS adjustments		29.7
Total Expenditure (excluding Business Stream and IFRS)			**833.7**
Represented by			
SW Regulated			815.2
SW Non Regulated			1.5
Horizons			16.6
International			0.4

E Tables include the costs of Scottish Water (Regulated) activities only. Table E1 and E2 have been removed from the Annual Return. However, reconciliation and commentary include reference to equivalent E1 & E2 table results for ease of understanding.

To aid year-on-year comparison M18 W & M18 WW tables include the costs of Scottish Water (Regulated & Non Regulated), Scottish Water Horizons and Scottish Water International activities.

Scottish Water company, Scottish Water Horizons and Scottish Water International combined results are summarised and reconciled below, to E tables and the regulatory account tables M18 (W & WW).

(£m)	SW SWH & SWI*	Diff Board - M18	M18W/WW Tables Total	Diff M18 - E1/2/3a	E Tables Total	E1	E2	E3a
Employment	**150.2**		**355.4**		**337.8**	202.3	135.5	0.0
Other	**208.3**							
Opex	**358.5**	**3.0**	**355.4**	**17.6**	**337.8**	**202.3**	**135.5**	**0.0**
PFI	**146.7**	**(4.2)**	**151.0**	**0.0**	**151.0**	0.0	0.0	151.0
IMC	**107.5**	**0.1**	**107.4**	**0.0**	**107.4**	74.8	32.6	0.0
Depreciation	**220.2**		**222.0**		**221.2**	119.5	101.6	0.0
Grant Amortisation	**(0.9)**	**(0.1)**	**(0.9)**	**0.8**	**(0.9)**	(0.6)	(0.2)	0.0
Amort PFI	**2.3**		**0.0**		**0.0**			
Gain on assets	**(0.6)**		**0.0**		**0.0**			
Expenditure	**833.7**	**(1.2)**	**834.9**	**18.4**	**816.5**	**396.0**	**269.5**	**151.0**
Explained by								
Charges to SWBS for support		1.2						

***** Excludes Business Stream, IFRS & IAS19

The line differences are table presentation differences explained as follows:

- £4.2m difference between our Board report and M18 Tables re PFI costs, is due to transfer of costs from Customer Operations for Intersite Sludge Tankering from Scottish Water wastewater treatment works to PFI works (£3.1m), terminal pumping station costs pumping to PFI works (£0.7m) and support costs for the PFI team (£0.4m).
- £1.2m of Scottish Water expenditure has been charged to Business Stream under Service Agreements. This cost has been netted off Scottish Water's expenditure in line with group inter-company transaction reporting. However, for the purposes of regulatory reporting this expenditure has been added back to report the full costs of providing these third party services.
- £18.4m Non Regulated expenditure is included in M18 Tables but is excluded from E Tables.

E Table Commentary

Where appropriate previous E1 & E2 table line numbers have been included for reference.

Total Operating Costs

Total operating costs (E1.20+E2.19-E1.17-E2.16), increased by £11.5m to £337.8m (as detailed below).

	2011/12	2010/11	Variance
	£m	£m	£m
Total operating costs – Water	202.347	191.224	(11.123)
Total operating costs – Waste	135.490	135.143	(0.347)
Exceptional costs – Water	0.000	0.000	+0.000
Exceptional costs – Waste	0.000	0.000	+0.000
	337.837	**326.367**	**(11.470)**

Scottish Water's reported regulated operating costs of £340.2m reconcile to the E Table total operating costs of £337.8m as detailed below:

Operating Expenditure		**337.8**
Add	SW Opex allocated to PFI (Table E3a)	4.2
Less	SWBS Support charges	(1.2)
Less	Depreciation in Service Charges to Horizons	(0.7)
Regulated SW Operating Expenditure		**340.2**

The £11.5m increase in operating costs includes one significant movement related to an atypical item in 2010/11:

- £7.4m one off credit on local authority rates in prior year.

Excluding atypical costs, the following increases have been absorbed:

- £11.7m impact of inflation (based on average RPI of 4.8%);
- £2.0m new operating costs resulting from capital investment;
- £2.6m local authority rates changes;
- £3.0m carbon tax;
- £15.5m costs of voluntary redundancy and restructuring, compared to £14.4m in 2010/11 – an increase of £1.1m; and
- £0.6m SEPA and WIC costs.

These increases were partly offset by reduced winter costs in 2011/12 relative to 2010/11 – a reduction of £6.4m.

Underlying, controllable costs have therefore reduced in real terms by £9.6m (3.8%) reflecting reduced headcount, improved leakage reduction, more efficient operations, and improved contractor management.

Functional Expenditure

Total functional expenditure (lines E1.10 & E2.09) decreased by £1.1m (0.5%) from 2010/11 (as detailed below).

Analysis of functional expenditure –

	2011/12	2010/11	Variance
	£m	£m	£m
Total functional costs – Water	118.022	119.172	+1.150
Total functional costs – Waste	93.724	93.643	(0.081)
	211.746	**212.815**	**+1.069**

Direct employment costs (E1.1 & E2.1) decreased by £3.6m (5.3%) from 2010/11 to £64.6m. The main reasons for decreases were: efficiencies generated by the PACE (Performance and Customer Excellence) project of £2.1m; reduction in leakage detection effort of £1.8m; and reduction in extreme weather costs of £0.8m partly offset by increase in WTW operating costs of £1.1m. The average headcount employed during the year was 3,224, compared to 3,356 in 2010/11. The number of employees in total at March 2012 was 3,230, a reduction of 29 full time equivalents from the March 2011 figure (3,259), mainly in direct operational employees.

Direct power costs (E1.2 & E2.2) decreased by £0.2m (0.5%) to £36.5m. The main reasons for the decrease were: reduced consumption from 439 GWh in 2010/11 to 422 GWh, saving £1.5m in power costs; a reduction in average unit price of 0.005p, saving £1.4m; and an increase in renewable energy credits of £0.8m, of which £0.7m related to prior years; offset by carbon tax of £3.0m and additional costs resulting from capital investment of £0.8m. The main operational reasons for the consumption reduction were reduction in extreme weather pumping £0.5m and leakage volume reductions of £0.9m.

Hired and contracted costs (E1.3 & E2.3) decreased by £5.0m (16.9%) to £24.8m. The main reasons for the decrease were: reduction in sewer intervention activity as a result of resolving repeat blockages of £1.9m; reduction in extreme weather costs of £1.8m; and a decrease in restructuring costs (PACE project) of £2.2m; partly offset by an increase in operating costs due, in part, to incidents of £0.5m and additional costs resulting from capital investment of £0.4m.

Materials and consumables expenditure (E1.4 & E2.4) increased by £0.1m (0.6%) to £14.9m. The mains reasons for the increase were: chemical price increases of £0.3m; and additional costs resulting from capital investment of £0.2m; partly offset by reduction in extreme weather costs of £0.3m.

SEPA costs (E1.5 & E2.5) increased by £0.3m (2.7%) to £10.7m due mainly to change from Point Discharge to Sewer Network Licences (SNL) for the sewer network.

Other direct costs (E1.7 & E2.6) increased by £2.1m (36.7%) to £7.9m mainly due to increase in insurance claim costs of £2.4m, mostly in relation to burst incidents of £2.8m; and fuel price rises of £0.8m; partly offset by a reduction in extreme weather hires of £0.8m; and other extreme weather costs of £0.4m.

General and Support costs (E1.9 & E2.8) increased by £5.3m (11.1%) to £52.5m. The main increases were increased out performance incentive payments, VR and restructuring costs of £2.2m; an increase in asset management operating costs due to switch in activity from

capital programme management and delivery to asset strategy development and planning of £2.2m; and an increase in support costs of £0.6m.

Business activities

Total business activities expenditure (E1.14 & E2.13) has increased by £1.8m (4.8%) from 2010/11 (as detailed below).

	2011/12	2010/11	Variance
	£m	£m	£m
Customer services	18.877	18.046	(0.831)
Scientific services	12.727	12.109	(0.618)
Other business activities	8.070	7.693	(0.377)
	39.674	**37.848**	**(1.826)**

Customer services costs have increased by £0.8m (4.6%) to £18.9m mainly due to increase in council billing and collection service costs.

Scientific services regulated operating expenditure increased by £0.6m (5.1%) to £12.7m, mainly due to an increase in direct costs for water source chemical testing (additional samples taken and sub-contracting of testing process) of £0.4m; one-off recruitment and relocation costs of £0.1m; and a slight shift from capital to operational samples.

Other Business Activities costs increased by £0.4m (4.9%) to £8.0m, due to an increase in CMA costs of £0.6m; and accrued Wholesale fines of £0.3m; partly offset by a decrease in WICS fees of £0.1m; and decrease in other payments to WICS of £0.2m.

Rates

Local authority rates (E1.15 & E2.14) increased by £10.1m (21.3%) to £57.5m due to an increase in uniform business rate of 4.6% (£2.6m) and the effect of a one-off, atypical refund of £7.4m in 2010/11.

Doubtful debts

Total regulated doubtful debt costs remained unchanged at £24.0m, as detailed below.

	2011/12	2010/11	Variance
	£m Charge	£m Charge	£m
Regulated	24.001	23.992	(0.009)
Non Regulated	0.100	0.434	+0.334
	24.101	24.426	+0.325

Third party costs

Third party costs (E1.19 & E2.18) have been allocated between core and non core in accordance with Regulatory Accounting definitions. Core Third Party services costs increased by £0.6m (14.3%) as detailed below, mainly due to increased bad debt costs of £0.3m; and increased general and support costs of £0.2m. Support services provided to Scottish Water Business Stream remained unchanged at £0.7m.

	2011/12	2010/11	Variance
	£m	£m	£m
Core third party services	4.960	4.339	(0.621)
	4.960	**4.339**	**(0.621)**

Capital maintenance

Capital maintenance costs (E1.30 & E2.29) increased by £15.5m (5.0%) to £327.7m; mainly due to the Non-infrastructure Depreciation impact of increased capital investment £14.1m.

Water/Wastewater Split of Costs

The proportion of functional expenditure to water activities has remained unchanged at 56% in 2011/12, as detailed in the table below.

	2011/12	2011/12	2010/11	2010/11
	£m	%	£m	%
Water	118.022	55.7%	119.172	56.0%
Wastewater	93.724	44.3%	93.643	44.0%
	211.746	100.0%	212.815	100.0%

Water functional expenditure decreased by £1.2m (1.0%) from 2010/11 to £118.0m. These increases occurred as detailed below:

- £2.8m (6.9%) decrease in employment costs from 2010/11 reflecting efficiencies generated by PACE project of £1.3m; reduction in leakage detection effort of £1.8m; and reduction in extreme weather costs of £0.8m; offset by increased WTW operating costs due to wet summer, incidents and focus on water quality OPA improvements £1.1m;
- £1.7m (9.7%) decrease in power costs is primarily due to reduced consumption and lower prices of £2.3m, enabled by reduction in extreme weather pumping and leakage volume reduction; and increase in renewable energy credits of £0.8m; offset by carbon tax of £1.3m and additional costs resulting from capital investment of £0.3m;
- £1.8m (10.7%) decrease in hired and contracted costs is mainly due to a reduction in extreme weather costs of £1.4m, mainly burst repairs; a decrease in restructuring costs (PACE project) of £1.2m; offset by operating costs partly due to incidents of £0.5m and additional operating costs as a result of capital investment of £0.2m;
- £0.2m (1.6%) increase in materials and consumables is due to price rises of £0.3m and additional costs resulting from capital investment of £0.1m; partly offset by leakage volume reductions of £0.3m;
- £1.8m (46.4%) increase in other direct costs is primarily due to insurance claim costs of £2.2m, mostly related to burst incidents; partly offset by reduction in extreme weather costs of £0.4m; and
- £3.2m (11.9%) increase in general and support costs was due to: increased out-performance incentive payments, VR and restructuring costs of £1.3m; an increase in asset management operating costs due to switch in activity from capital programme management and delivery to asset strategy development and planning of £1.4m; and increase in support costs of £0.5m.

Wastewater functional expenditure increased by £0.1m (0.1%) from 2010/11 to £93.7m. These increases occurred as detailed below:

- £0.9m (3.0%) decrease in employment costs from 2010/11 reflecting efficiencies generated by PACE project of £0.8m;
- £1.5m (8.0%) increase in power costs due to carbon tax of £1.7m; and additional costs resulting from capital investment of £0.5m; partly offset by reduced consumption and lower prices of £0.6m;
- £3.3m (24.5%) decrease in hired and contracted costs, due to a reduction in sewer intervention activity as a result of resolving repeat blockages of £1.9m; reduction in extreme weather costs of £0.4m; and decrease in restructuring costs (PACE project) of £1.0m; offset by additional operating costs as a result of capital investment of £0.2m;
- £0.1m (3.6%) decrease in materials and consumables mainly due to reduced operating expenditure of £0.2m; partly offset by additional costs resulting from capital investment of £0.1m;
- £0.4m (4.7%) increase in SEPA charges due mainly to change from Point Discharge to Sewer Network Licences (SNL) for the sewer network;
- £0.4m (18.2%) increase in other direct costs due to a increase in insurance claim costs of £0.2m; and costs for an Operations Digital Platform £0.2m; and
- £2.1m (10.1%) increase in general and support costs due to: increased out-performance incentive payments, VR and restructuring costs of £0.9m; an increase in asset management operating costs due to switch in activity from capital programme management and delivery to asset strategy development and of £0.8m; and an increase in support costs of £0.1m.

Confidence Grades – Confidence grades on the tables remain consistent with 2010/11.

Direct costs are predominantly captured in the core corporate financial system, with labour costing feeds from the core corporate works management system. A high proportion of direct costs are captured by asset, hence the A2 confidence grade.

In order to achieve A1 accuracy, Scottish Water will continue to increase the level of direct cost capture further and build in more accurate and tested allocations of cost where direct cost capture does not provide splits by regulatory classification, e.g. single power meter at a dual function asset.

General & Support costs and Operating expenditure are generally allocated to regulatory activities on the basis of underlying activity and cost driver analysis. Accuracy depends primarily on the quality of cost driver data. Most key drivers are of good quality from reliable system sources and therefore A2 confidence grade is appropriate.

The Reactive and Planned Maintenance analysis remains at A3 reflecting the use of ABM, fed directly from Works Management analysis, for this activity analysis.

Capital Maintenance costs are generated directly from the Fixed Asset Register. Confidence grades remain at A2 reflecting the significant proportion of depreciation captured directly by asset. The only element of capital maintenance which requires significant cost allocation is support asset depreciation, e.g. IT, Fleet, Property. Support asset depreciation is allocated to regulatory activities on the basis of underlying activities and cost driver data. IT depreciation forms the majority of support asset depreciation.

Table E3 and E3a PPP project analysis

Table Overview
Table E3 provides details of the 21 PPP wastewater treatment works that are managed under 9 separate PPP Concession agreements.

The following works form part of each scheme:

PPP Scheme	Wastewater Treatment Works *
Highland	Fort William, Inverness
Tay	Hatton
Aberdeen	Fraserburgh, Peterhead, Nigg, Persley
Moray Coast	Lossiemouth, Buckie, Banff/Macduff
AVSE	Seafield, Newbridge, East Calder, Blackburn, Whitburn
Levenmouth	Levenmouth
Dalmuir	Dalmuir
Daldowie*	Daldowie sludge treatment centre
MSI	Meadowhead, Stevenston, Inverclyde

- Daldowie is a sludge treatment centre only.

Due to rounding of the individual cells in the table the totals given in the commentary may not match exactly the values in the total column in the table.

Table E3 PPP project analysis

E3.0-3 Project data

E3.1 Annual average resident connected population

The annual average resident connected population increased by 8,545 to 2,116,518.
This reflects the increase in the general population reported in Table E7.1. The confidence grade remains at B3.

E3.2 Annual average non-resident connected population

The annual average non-resident connected population increased by 3,136 to 26,507.
The confidence grade remains at B3 which is unchanged from the Annual Return 2010/11.

E3.3 Population equivalent of total load received

The population equivalent of total load received decreased by 43,893 to 3,035,909.
This drop is due to a reduction in the non-domestic load reported as being received at these WWTW.

The population equivalent of total load received consists of the following constituents:

- Population
- Tourist
- Non-domestic load
- Trade effluent
- Imported private septic tanks

- Imported public septic tanks
- Imported other loads
- Imported WWTW sludge
- Imported WTW sludge
- Sludge return liquors

Population (69.72% of total load)
The population load increased by 8,545 p.e.

Tourist (0.87% of total load)
The tourist load increased by 3,136 p.e.

Non-domestic load (13.49% of total load)
The non-domestic load increased by 10,923 p.e.

Trade effluent (15.59% of total load)
The trade effluent load decreased by 68,368 p.e. Due to the opening of the retail market to competition in April 2008, the source of this data is now the Central Marketing Agency.

Imported private septic tanks (0.02% of total load)
The imported private septic tanks load increased by 131 p.e.

Imported public septic tanks (<0.01% of total load)
The imported public septic tanks load increased by 34 p.e.

Imported other (<0.01% of total load)
Imported other loads increased by 34 p.e.

Imported WWTW sludge (0.25% of total load)
The imported WWTW sludge load increased by 1,930 p.e.

Imported WTW sludge
No imported WTW sludge was treated at PPP treatment works.

Sludge return liquors (0.06% of total load)
The sludge return liquor load reduced by 259 p.e. The confidence grade remains at B3 which is unchanged from 2010/11.

Due to rounding of the individual cells in the table the totals given in the commentary may not match exactly the values in the total column in the table.

E3.4-8 Scope of works
E3.4 Sewerage

Fort William	includes incoming sewer and four pumping stations.
Inverness	includes a major pumping station and associated pumping mains/gravity sewer.
Hatton	includes extensive pumping mains and pumping stations.
Nigg	includes incoming sewer and 14 pumping stations.
Persley	includes short section of incoming sewer
Peterhead	includes short section of incoming sewer
Fraserburgh	includes short section of incoming sewer and one terminal pumping station.
Moray Coast	includes extensive pumping mains and pumping stations.
Seafield	includes the Esk valley trunk sewerage network, a number of storm

	water works with overflow and seven sewage pumping stations.
Newbridge	includes short section of incoming sewer, a storm water works with overflow and two pumping stations.
Whitburn	includes one terminal pumping station
Levenmouth	includes eight pumping stations and associated rising mains and sewers.
Daldowie	Includes one pumping station and pumping main
Inverclyde	Includes one outfall

E3.5 Sewage Treatment

Only Daldowie does not include sewage treatment – it is exclusively a sludge treatment centre.

E3.6 Sludge Treatment

Permanent sludge treatment facilities

Inverness	Indigenous sludge, imports from Fort William, plus Scottish Water imports
Hatton	Indigenous sludge plus Scottish Water imports
Nigg	Indigenous sludge, imports from Persley, Peterhead, Fraserburgh, plus Scottish Water imports
Lossiemouth	Indigenous sludge, imports from Buckie, Banff Macduff, plus Scottish Water imports
Seafield	Indigenous sludge, occasional imports from Newbridge, East Calder, Blackburn, Whitburn, plus Scottish Water imports
Newbridge	Indigenous sludge, imports from East Calder, Blackburn, Whitburn, plus Scottish Water imports
Daldowie	receives sludge from Dalmuir and Scottish Water wastewater treatment works (Daldowie, Shieldhall, Paisley, Dalmarnock and Erskine) by sludge pipeline, and from SW tankered imports
Meadowhead	Indigenous sludge, plus imports from Stevenston and Inverclyde
Levenmouth	Indigenous sludge, plus Scottish Water imports*

Temporary sludge treatment facilities

The following sites do not have a permanent sludge treatment centre but temporary sludge treatment facilities were deployed on site.

Dalmuir	Temporary centrifuging deployed to limit the pass forward sludge to Daldowie STC to a maximum ferric content of 2 tonne/day
Daldowie (Shieldhall)	Temporary centrifuging deployed to alleviate storage constraints at Daldowie STC

E3.7 Terminal Pumping Station

This means a pumping station that is the final point on the forward flow path from a sewerage network into a wastewater treatment works and may include both pumping of all/partial 'FFT' flows or stormwater flows to storm tanks and/or storm outfalls. The Terminal Pumping Station may form part of the sewerage network (i.e. be remote from the WTP) or may be associated with a wastewater treatment works depending on actual location and power supply source. It is not a Combined Pumping Station or a Stormwater Pumping Station.

The following works include incoming terminal pumping stations as part of the PPP scheme. Maximum capacity (l/s) of terminal pumping station, excluding standby capacity, is given in brackets:

Fort William	Caol Transfer (118 l/s), Fort William WwTW(590 l/s).
Inverness	Allanfearn WwTW(50 l/s).
Hatton	South Balmossie (1,406 l/s), West Haven (110 l/s), Inchcape Park(241 l/s).
Fraserburgh	Fraserburgh Inlet (195 l/s).
Lossiemouth	Duffus Junction (33 l/s), Moycroft (300 l/s).
Buckie	Nook (84 l/s), Shipyard (70l/s), Buckie WwTW (13 l/s).
Banff Macduff	Craigfauld (552l/s), Banff Macduff WwTW (222 l/s).
Seafield	A proportion of total flow is delivered via Marine Esplanade Terminal PS (1420 l/s).
Newbridge	A proportion of total flow is delivered via the Ratho Sewer Terminal PS (196 l/s).
Whitburn	A proportion of total flow is delivered via the Harrison Sewer Terminal PS (45 l/s).
Levenmouth	All flow delivered via terminal pumping stations; Methil M2 (125 l/s), Leven (212 l/s), Buckhaven (133 l/s), Levenmouth WwTW inlet FFT flows (1,650 l/s), Levenmouth WwTW inlet storm flows (2,347 l/s).

E3.8 Other - No plants in this category.

E3.9-14 Sewage treatment - effluent consent standard

E3.9-13 Effluent consent standards

Data obtained from the current SEPA consents.

Where effluent consent standard includes both CAR and UWWTD elements the tighter standard is given in the return.

At Meadowhead the CAR license has still not been issued. License is based on COPA consent.

E3.9 Suspended solids consent – all CAR**.**

Consent at Dalmuir (UT only) was not included prior to 11/12.

E3.10 BOD consent – all UWWTD except Newbridge, East Calder, Blackburn and Whitburn

E3.11 COD consent – all UWWTD

E3.12 Ammonia consent – all CAR

E3.13 Phosphate consent – all CAR,

At Newbridge, East Calder, Blackburn and Whitburn consent is expressed as; 'Mean concentration of total phosphorous of any series of composite samples taken at regular but randomised intervals in any period of 12 months.

E3.14 Compliance with effluent consent standards

Compliance for BOD, COD, SS, Ammonia, and Phosphate is reported for each works, based on the total number of sample results and exceedances (upper and lower tier) for sanitary determinands (to the exclusion of other parameters that may be included in the SEPA consent). Where effluent consent standard includes both CAR and UWWTD standards both sets of samples are used for the calculation of compliance.

Percentage compliance is calculated as:

(1-(total number of failures/total number of samples)) x 100

The SEPA Annual Compliance Report for period ending 31 December 2011 has been taken as the definitive data source, provided by our Regulator, and as such a Confidence Grade of A1 has been assigned.

Compliance calculated under this methodology may cause conflicts with Table C4 (C4.19) "Number of discharges confirmed as failing", which considers all SEPA consent parameters.

Failures

Site		Parameter	Date of Failure	Comment
Allanfearn	UWWTD	BOD	24/03/11 F	Root cause identified as a backlog of sludge within the wastewater treatment process (brought about by problems within the sludge handling plant).
		COD	24/03/11 E	
Nigg	UWWTD	BOD/COD	23/11/11 F	REMOVED BY SEPA. Failure appealed on the basis that the result recorded by SEPA did not tie in with daily performance as measured by AES's accredited laboratory. AES letter 06/01/12 refers with SEPA response dated 23/02/12.
		COD	08/09/11 F	Failure as a result of an overload of influent COD load from an unknown source. Investigations did not find any obvious source. Appeal submitted to SEPA but subsequently rejected.
Persley	CAR	BOD	12/12/11 E	Failure due to poor activated sludge health as a result of unsatisfactory operating conditions, resulting in reduced BOD removal and final effluent particulate matter.
		Orthophosphate (as P)	12/12/11 E	
Seafield	UWWTD	BOD	22/11/11 E	REMOVED BY SEPA. 35mg/l exceedance passed on percentage reduction (>75%) as set out in SEPA report dated 20/12/11.
	CAR	SS	23/02/11 E	Exceedance on Primary Effluent overflow standard. Flow through works was limited due to ongoing

Site		Parameter	Date of Failure	Comment
				modification works to the Final Settlement Tanks. An EPI (Cat 4) was in place to cover this period. The failure was not appealed.
Newbridge	CAR	Ammonia	10/02/11 E 21/02/11 E	Both failures occurred due to significant additional ammonia load as a result of continued sludge thickening whilst a digester was being taken out of service. Both acknowledged as operator error with no grounds for appeal.
Blackburn	CAR	Ammonia	21/11/11 E	Failure associated with failure of a drive unit on one of the biofilters. The issue had been noted, but not rectified by the operator in a timely manner. No notification to SEPA or EPI was in place at the time. No grounds for appeal.
Dalmuir	CAR	Ammonia	26/04/11 E	Failure occurred due to a period of dry weather/low flow, which raised the inlet ammonia concentrations. Historically this has not been a problem, so WwTW not designed to remove ammonia, hence failure at the outlet. Additional works to provide ammonia removal programmed for completion by 2014

E3.15-21 Treatment works category

Information contained in these lines is extracted from the project agreements and is given a confidence grade of A1.

E3.15 **Primary**.
E3.16 **Secondary activated sludge -** Includes all plants except Blackburn.
E3.17 **Secondary biological -** Blackburn**.**

E3.18 Tertiary A1

East Calder	Nitrifying filters.
Whitburn	Nitrifying filters.

E3.19 Tertiary A2

Inverness	UV disinfection.
Persley	UV disinfection.
Faserburgh	UV disinfection.
Banff Macduff	UV disinfection.
Seafield	UV disinfection, plus chemical (peracetic acid) contact tank used on an intermittent basis depending on flow.

Levenmouth	Chemically enhanced settlement process plus UV disinfection.
Newbridge	Low head loss sand filters
East Calder	Low head loss sand filters
Whitburn	Low head loss sand filters
Meadowhead	Biofors tertiary filter

E3.20 Tertiary B1 - No plants in this category.

E3.21 Tertiary B2

Blackburn	Low head loss sand filters

E3.22-32 Sewerage Data

Includes all sewerage (sewers, pumping stations, rising mans, outfalls and long sea outfalls)

Data sources: Concessions Agreements, Operators O&M manuals, Operators asset inventories, SW GIS system, as built drawings, SEPA consents.

Pump capacity (kW) obtained from motor drive rating, not the pump duty point.

SW GIS will be updated to include as built records of new sewer constructed by PFI Co.

E3.22 Total length of sewer

Length of outfalls included in data unless noted otherwise in commentary.

Where terminal pumping stations are located remote from a wastewater treatment works, the length of rising main connecting the terminal pumping station and wastewater treatment works is included.

At Hatton there was small change to total length of sewer following investigations (Pell Frischman, Metoc, etc) and sale of westernmost outfall (of twin outfall) at Riverside to Dundee Cold Stores in 2010.

At Levenmouth a new short outfall was constructed as "contingency" to allow repairs to be undertaken to main outfall. It was retained for future use under temporary licence to be granted by SEPA.

E3.23 Total length of critical sewer

Unless stated otherwise, all PPP sewers (including relief sewers, rising mains and CSO outfalls) are deemed to be critical. The Leven PS rising main to the storm tank and the return drain are however not deemed to be 'critical sewers'.

E3.24 Number of pumping stations

Includes stormwater, combined and terminal pumping stations. Interstage and final effluent pumping stations forming part of a wastewater treatment plant are not included.

E3.25 Capacity of pumping stations (m3/d)

Includes stormwater, combined and terminal pumping stations. Maximum flow pumped forward per day. This excludes capacity of standby pumps.

E3.26 Capacity of pumping stations (kw)

includes stormwater and combined pumping stations, but not terminal pumping stations. Includes capacity of standby pumps.

At Hatton there was an upgrade in 11/12 to the pumps at KGV from 124kW to 180kW for the duty, assist and standby pumps.

At Banff Macduff there was an upgrade in 11/12 to the pumps at Castlehill Park from 58kW to 85kW for the duty and assist pumps. The standby pump has not yet been upgraded.

E3.27 Number of combined pumping stations –

Combined pumping station means a network wastewater pumping station containing a pump or pumps transferring wastewater forward within the downstream sewerage network. The transferred wastewater flow rate from the combined pumping station is the "FFT" rate, the generally accepted term used in design and SEPA consents. For the sake of clarity, where stormwater storage tank returns are pumped back into the sewerage system for onward flow, this shall be classed as a combined pumping station (as such flows become part of 'FFT'). Terminal pumping stations are not included.

The following combined pumping stations are included:

Fort William	Blar Mhor, Caol No1
Inverness	Longman
Hatton	Riverside, KGV, Stannergate, West Ferry, Broughty Castle, Fort Street, Gray Street
Nigg	Downies, Portlethen Village, Newtonhill Clifftop, Portlethen South, Backies, Cowie (3), Slughead, Bridge of Muchalls, Cammachmore, Portlethen North
Lossiemouth	Burghead, Cummingston, Hopeman, Moycroft
Buckie	Portgordon West, Portgordon East, Seatown, Cluny, Cullen East, Portknockie, Findochty, Portessie
Banff/Macduff	Whitehills, Whitehills Harbour, Inverboyndie, Scotstown, Castlehill Park, Union Road, Bankhead
Seafield	Wallyford Transfer, Wallyford SWW, Portobello SWW, Harelaw SWW, Dalkeith SWW, Mayshade SWW,
Newbridge	Broxburn SWW.
Levenmouth	Methil M1.

Mayshade: pumping station comprises a separate duty/standby pump set in two separate storm tanks. As only one duty pump operates at any one time (i.e. storm tank 1 emptied before commencing emptying of storm tank 2) these four pumps have been entered as a single combined pumping station on a 1 duty/3 standby basis.

E3.28 Capacity of combined pumping stations (m3/d)

Maximum flow pumped forward per day. This excludes capacity of standby pumps.

E3.29 Number of stormwater pumping stations

Stormwater pumping station means a network wastewater pumping station containing a pump or pumps transferring wastewater, containing stormwater, to a stormwater storage tank or storm overflow. The stormwater pumping station transfers wastewater in excess of "FFT", the generally accepted term used in design and SEPA consents. For the sake of clarity, the function of the stormwater pumping station is to prevent and/or limit surcharging of the upstream sewerage system.

The following stormwater pumping stations are included:

Inverness	Longman (2)
Hatton	Riverside, KGV, Stannergate, Westhaven, Broughty Castle, Inchcape Park
Nigg	Backies (2)
Lossiemouth	Moycroft
Buckie	Portessie
Banff Macduff	Bankhead
Levenmouth	Leven, Roundall

E3.30 Capacity of stormwater pumping stations (m3/d)

Maximum flow pumped forward per day. This excludes capacity of standby pumps.

At Hatton there was a change to capacity of the stormwater pumping station at Riverside following investigations (Pell Frischman, Metoc, etc) in 2010.

E3.31 Number of combined sewer overflows &
E3.32 Number of combined sewer overflows (screened) –

CSOs that overflow within the sewerage system rather than to an outfall discharging direct to the environment are not included.

The following CSOs are included:

Fort William	Caol No1, Caol Transfer
Inverness	Longman
Hatton	Riverside, KGV, Stannergate, South Balmossie, Westhaven, Broughty Castle, Inchcape Park, Panmurefield/Balmossie Mill (2)
Nigg	Downies, Portlethen Village, Newtonhill Clifftop, Backies (2), Cowie, Portlethen North, Nigg
Fraserburgh	Fraserburgh Inlet
Lossiemouth	Burghead, Cummingston, Hopeman, Moycroft
Buckie	Portgordon West, Portgordon East, Seatown, Cluny, Nook, Cullen East, Portknockie, Findochty, Portessie, Shipyard
Banff Macduff	Whitehills, Whitehills Harbour, Inverboyndie, Scotstown, Castlehill Park, Union Road, Bankhead, Craigfauld
Seafield	Wallyford, Dalkeith, Hardengreen, Harelaw, Haveral Wood, Middlemills, Newbattle, Newtongrange, Suttieslea
Newbridge	Broxburn
Levenmouth	Buckhaven, Methil M2 CSO2, Methil CSO1, Leven, Roundall

Seafield - Dalkeith SWW consists of two separate screen overflows on two separate legs of the sewer which combine at the SWW. As each screened overflow is located on the same site and feeds one common storm water tank and outfall, this overflow has been recorded as a single CSO. Suttieslea: 'Copa Sac', (equivalent to 6 mm screen), provided on outfall from storm tank.

Levenmouth - Methil CSO1 and Methil M2 CSO2 discharge into a common outfall.

E3.33-40 Sludge Treatment and Disposal Data

The quantities reported are the total sludge treated at the sludge treatment facilities (both from permanent and temporary) including the sludge destroyed through the treatment process. This is in accordance with the methodology used in England & Wales.

The information is based on PPP Company records of sludge disposed to the appropriate route.

Allanfearn sludge quantities disposed and the corresponding costs are included in Table E3 (costs in E3a) to be consistent with the rest of the PPP works.

TABLE E3a

This table provides operating costs for each scheme. As actual data is not available, all costs have been extracted from the financial model. Where the financial model does not split costs the following has been assumed:

- Works with a Sludge Centre: 72 % Treatment Costs, 28% Sludge Costs
- All other works: 80% Treatment, 20% Sludge Costs. These sludge costs have been taken forward to the appropriate sludge centre, e.g. Fort William sludge costs appear against Inverness sludge centre.

E3a.1, 8, 16 Estimated Direct Operating Cost

Estimated annual direct operating costs are based on the Concessionaire's financial model adjusted for actual inflation.

Where the model identified Rates and SEPA charges these have been deducted otherwise actual charges were deducted.

No adjustments were made at AVSE (for Rates), Daldowie (for Rates), and MSI (SEPA and Rates) as charges are paid by Scottish Water and are not included in the financial model. At Dalmuir Scottish Water pays the charges but amounts are also included in the model, therefore an adjustment to the model costs was made (Rates and SEPA charges included in the model are refunded to Scottish Water).

Actual costs are not known and could vary considerably from the financial model. A confidence grade of D6 has therefore been used. A confidence grade of A3 was allocated to the Dalmuir sludge treatment costs as these costs are available.

E3a.2, 9, 17 Rates paid by the PPP Contractor

These are based on the rateable value and poundage published on the government website (www.saa.gov.uk). Rates paid by Scottish Water are also included and are based on actual charges for the year (Dalmuir, Daldowie, MSI, AVSE).

Confidence grade for total rates paid for each site is A2, but because rates have to be split to take account of the sewerage, treatment and sludge elements a lower confidence grade has been applied.

	E3a.2	E3a.9	E3a.17	
Site	**N**	**T**	**S**	**Comment**
Fort William	N	B3	N	No sludge centre at works, sludge cost moved to Inverness
Inverness	N	B3	B3	Cost distribution is estimated
Hatton	N	B3	B3	Cost distribution is estimated, based on the Financial Model
Nigg	N	B3	B3	Cost distribution is estimated, based on the Financial Model
Persley	N	B3	N	No sludge centre at works, sludge cost moved to Nigg
Peterhead	N	B3	N	No sludge centre at works, sludge cost moved to Nigg
Fraserburgh	N	B3	N	No sludge centre at works, sludge cost moved to Nigg
Lossiemouth	N	B3	B3	Cost distribution is estimated, based on the Financial Model
Buckie	N	B3	N	No sludge centre at works, sludge cost moved to Lossiemouth
Banff Macduff	N	B3	N	No sludge centre at works, sludge cost moved to Lossiemouth
Seafield	N	B3	B3	Cost distribution is estimated, based on the Financial Model
Newbridge	N	B3	B3	Cost distribution is estimated, based on the Financial Model
East Calder	N	B3	N	No sewerage and no sludge centre at works, sludge cost moved to Newbridge
Blackburn	N	B3	N	No sewerage and no sludge centre at works, sludge cost moved to Newbridge
Whitburn	N	B3	N	No sludge centre at works, sludge cost moved to Newbridge
Levenmouth	N	B3	B3	Cost distribution is estimated,
Dalmuir	N	B3	N	No sewerage and no permanent sludge centre at works
Daldowie	N	N	A2	No sewage treatment at works
Meadowhead	N	B3	B3	Cost distribution is estimated
Stevenston	N	B3	N	No sewerage and no sludge centre at works, sludge cost moved to Meadowhead
Inverclyde	N	B3	N	No sludge centre at works, sludge cost moved to Meadowhead

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E3a.3, 10, 18 SEPA charges paid by the PPP Contractor

Cost allocation is as per the SEPA invoices for 11/12.

The following confidence grades have been assigned:

	E3a.3	E3a.10	E3a.18	
Site	**N**	**T**	**S**	**Comment**
Fort William	A2	A2	N	no sludge centre at works
Inverness	N	A2	A2	no separate cost for sewerage, no sludge centre at works
Hatton	A2	A2	A2	
Nigg	A2	A2	A2	
Persley	N	A2	N	no separate cost for sewerage, no sludge centre at works
Peterhead	N	A2	N	Split provided by PFI Co,no sludge centre at works
Fraserburgh	N	A2	N	no separate cost for sewerage, no sludge centre at works
Lossiemouth	A2	A2	N	no subsistence charge included in invoices
Buckie	A2	A2	N	no sludge centre at works
Banff Macduff	A2	A2	N	no sludge centre at works
Seafield	A2	A2	A2	
Newbridge	A2	A2	A2	
East Calder	N	A2	N	No sewerage and no sludge centre at works
Blackburn	N	A2	N	No sewerage and no sludge centre at works
Whitburn	N	A2	N	No sewerage and no sludge centre at works
Levenmouth	A2	A2	A2	
Dalmuir	N	N	N	SEPA fees paid by SW
Daldowie	N	N	A2	Sludge treatment only
Meadowhead	N	N	A2	Only PPC fees paid by the PFI Co
Stevenston	N	N	N	SEPA fees paid by SW
Inverclyde	N	N	N	SEPA fees paid by SW

E3a.4, 11, 19, 23 Total Direct Cost

Total of E3a.1-3, 8-11 and 16-18. Confidence grade for Total direct cost is D6 as per E3a.1, 8 and 16 (Estimated direct operating cost) as this is the most significant element of Total direct cost. A confidence grade of A3 was allocated to the Dalmuir sludge treatment costs as these costs are available.

E3a.5, 12, 20 Scottish Water General and Support Expenditure

This includes advisors and legal costs, power, rent and insurance etc. and the cost of the Scottish Water PPP department that administers the PPP projects which have been allocated to projects based on opex. Costs are as per the P&L. In addition, Scottish Water costs of inter-site tankering and terminal pumping costs have been included where tankering or pumping has taken place between a Scottish Water works and a PFI site.

Confidence grade for total charges is A1, but because Scottish Water PPP department costs have to be split across all sites and all charges have to be split to take account of the sewerage, treatment and sludge elements the following confidence grades have been assigned:

A confidence grade of A3 was allocated to the Dalmuir sludge treatment costs as these costs are available.

	E3a.5	E3a.12	E3a.20	Comment
Site	**N**	**T**	**S**	
Fort William	CX	C4	N	Network cost very small, no sludge centre at works
Inverness	C4	C4	C4	
Hatton	C4	C4	C4	
Nigg	C4	C4	C4	
Persley	CX	C4	N	Network cost very small, no sludge centre at works
Peterhead	CX	C4	N	Network cost very small, no sludge centre at works
Fraserburgh	CX	C4	N	Network cost very small, no sludge centre at works
Lossiemouth	C4	C4	C4	
Buckie	C4	C4	N	No sludge centre at works
Banff Macduff	C4	C4	N	No sludge centre at works
Seafield	C4	C4	C4	
Newbridge	CX	C4	C4	Network cost very small
East Calder	N	C4	N	No sewerage and no sludge centre at works
Blackburn	N	C4	N	No sewerage and no sludge centre at works
Whitburn	CX	C4	N	Network cost very small, no sludge centre at works
Levenmouth	C4	C4	C4	
Dalmuir	N	C4	A3	No sewerage
Daldowie	C4	N	C4	No sewage treatment at works
Meadowhead	N	C4	C4	No sewerage
Stevenston	N	C4	N	No sewerage and no sludge centre at works
Inverclyde	CX	C4	N	Network cost very small, no sludge centre at works

E3a.6, 13, 21 Scottish Water SEPA Charges

With the exception of Dalmuir and MSI, all standard SEPA charges are met by the Concessionaire and are included in the tariff rates. At Nigg Scottish Water meet the additional SEPA charges associated with 2 parameters as detailed in the contract. Costs are as per the P&L and reflect charges as invoiced by SEPA.

	E3a.6	E3a.13	E3a.21	
Site	**N**	**T**	**S**	**Comment**
Fort William	N	N	N	SEPA charges paid by PFI Co
Inverness	N	N	N	SEPA charges paid by PFI Co
Hatton	N	N	N	SEPA charges paid by PFI Co
Nigg	N	A2	N	Treatment cost only (exotics)
Persley	N	N	N	SEPA charges paid by PFI Co
Peterhead	N	N	N	SEPA charges paid by PFI Co
Fraserburgh	N	N	N	SEPA charges paid by PFI Co
Lossiemouth	N	N	N	SEPA charges paid by PFI Co
Buckie	N	N	N	SEPA charges paid by PFI Co
Banff Macduff	N	N	N	SEPA charges paid by PFI Co
Seafield	N	N	N	SEPA charges paid by PFI Co
Newbridge	N	N	N	SEPA charges paid by PFI Co
East Calder	N	N	N	SEPA charges paid by PFI Co
Blackburn	N	N	N	SEPA charges paid by PFI Co
Whitburn	N	N	N	SEPA charges paid by PFI Co
Levenmouth	N	N	N	SEPA charges paid by PFI Co
Dalmuir	N	A2	N	No sewerage, no charge for temporary sludge centre at works
Daldowie	N	N	N	SEPA charges paid by PFI Co
Meadowhead	N	A2	N	Treatment cost only, sludge costs are paid by the PFI Co
Stevenston	N	A2	N	No sewerage and no sludge centre at works
Inverclyde	BX	A2	N	No sludge centre at works

E3a.7, 14, 22 Total sewerage cost, total sewage treatment cost, total sludge treatment costs and disposal cost

Confidence grade is D6 as per E3a.1, 8 and 16 (estimated direct operating Cost) as this is the most significant element of the cost.

A confidence grade of A3 was allocated to the Dalmuir sludge treatment and disposal costs as these costs are available.

E3a.15 Estimated terminal pumping cost

Reported costs are as per the costs incurred for the SW operated terminal pumping stations.

Where the terminal pumping station is part of the PPP scheme the costs are met by the Concessionaire and are included in the tariff rates and not reported as part of E3a.15.

E3a.24 Total Scottish Water cost

Total of Scottish Water General and Support Expenditure, and Scottish Water SEPA Charges (E3a.5-6, 12-13 and 20-21).

Confidence grade for total charges is A1, but because Scottish Water PPP department costs and internal recharges have to be split across all sites a confidence grade of C4 has been allocated.

Site	11/12 £m	10/11 £m	Variance £m	Comment
Ft William	0.024	0.011	0.013	11/12 includes higher consultants fees +£0.012m and lower other Scottish Water operating costs -£0.001m, and higher ABM support costs +£0.002
Inverness	0.639	0.606	0.033	11/12 includes higher consultants costs +£0.025m, higher sludge tankering and disposal costs +£0.016m, lower terminal pumping costs -£0.016m, and higher ABM support costs +£0.008
Hatton	0.371	0.386	-0.015	11/12 includes lower legal/consultants costs -£0.004m, and higher other Scottish Water operating costs +£0.008m, higher sludge tankering costs -£0.008m, lower terminal pumping costs -£0.015m, and higher ABM support costs +£0.004m
Nigg	1.257	1.087	0.170	11/12 includes higher legal/consultants fees +£0.036m, and lower other Scottish Water operating costs -£0.028m, higher sludge tankering costs +£0.153m, and higher ABM support costs +£0.009m
Persley	0.021	0.015	0.006	11/12 includes higher consultants costs +£0.007m, and lower other Scottish Water operating costs -£0.002m, higher ABM support costs +£0.001
Peterhead	0.038	0.012	0.026	11/12 includes higher consultants costs +£0.007m, and lower other Scottish Water operating costs -£0.001m, higher terminal pumping costs +£0.020m
Fraserburgh	0.017	0.009	0.008	11/12 includes higher consultants costs +£0.007m, and lower other Scottish Water operating costs -£0.001m, higher ABM support costs +£0.002
Lossiemouth	0.340	0.157	0.183	11/12 includes higher consultants costs +£0.025m, and higher other Scottish Water operating costs +£0.084m, higher sludge tankering costs +£0.066m, lower terminal pumping costs -£0.004m, and higher ABM support costs +£0.012
Buckie	0.018	0.009	0.009	11/12 includes higher consultants costs +£0.007m, higher ABM support costs +£0.002
Banff/Macduff	0.028	0.014	0.014	11/12 includes higher consultants costs +£0.011m, higher ABM support costs +£0.003
Seafield	0.201	0.134	0.067	11/12 includes higher consultants costs +£0.051m, and higher other Scottish Water operating costs +£0.003m, higher ABM support costs +£0.013

Site	11/12 £m	10/11 £m	Variance £m	Comment
Newbridge	0.024	0.023	0.001	
East Calder	0.009	0.009	0.000	
Blackburn	0.005	0.005	0.000	
Whitburn	0.006	0.005	0.001	
Levenmouth	0.226	0.140	0.086	11/12 includes higher Scottish Water operating costs +£0.067m, higher terminal pumping costs +£0.003m, and higher ABM support costs +£0.016
Dalmuir	0.937	0.734	0.203	11/12 includes higher Scottish Water operating costs +£0.176m, and higher ABM support costs +£0.027m
Daldowie	2.499	3.329	-0.830	11/12 includes higher legal/consultants costs +£0.014m, lower Shieldhall centrifuging costs and associated tanker diversion costs -£1.130m, lower other Scottish Water operating costs -£0.004m, higher sludge tankering costs +£0.338m, and lower ABM support costs -£0.048m
Meadowhead	0.948	0.763	0.185	11/12 includes higher consultants costs +£0.02m, and higher other Scottish Water operating costs +£0.002m, higher terminal pumping costs +£0.158m, and higher ABM costs +£0.005m
Stevenston	0.374	0.315	0.059	11/12 includes higher consultants costs +£0.029m, and higher terminal pumping costs +£0.023m, and higher ABM costs +£0.007m
Inverclyde	0.111	0.076	0.035	11/12 includes higher consultants costs +£0.015m, and higher terminal pumping costs +£0.016m, and higher ABM costs +£0.004m
TOTAL	**8.093**	**7.839**	**0.254**	

E3a.25 Total operating cost

Confidence grade for Total operating cost is D6 as per E3a.23 Total direct cost, as this is the most significant element of Total operating cost.

E3a.26 Annual charge

The Annual charge is based on the service fees for the year, provisions and business rates (including rebates). Expenditure is taken from the P&L.

Confidence grades for each of the AVSE schemes is B3 as the charges are based on the total AVSE flows as there is no separate tariff for each scheme.

Site	11/12 £m	10/11 £m	Variance £m	Comment
Ft William	3.563	2.910	0.653	11/12 penalties -£0.083m, higher flows/loads plus inflation +£0.732m, tax +£0.004m
Inverness	6.183	5.475	0.708	11/12 penalties -£0.474m, higher flows/loads plus inflation +£1.332m, tax +£0.030m, release of accruals -£0.177m, 10/11 included under accruals +£0.003m.
Hatton	21.13	20.366	0.764	11/12 higher flows/loads plus inflation +£0.591m, tax +£0.188m, 10/11 included Authority Variation +£0.035m, and release of accruals for costs incurred during the pea processing season -£0.020m
Nigg	13.386	12.943	0.443	11/12 penalties -£0.075m, lower flows/loads, plus inflation -£0.264m, tax +£0.096m and under accruals of +£0.029m, 10/11 included release of accruals -£0.657m.
Persley	1.971	2.242	-0.271	11/12 penalties -£0.078m, lower flows/loads, plus inflation -£0.202m, tax +£0.009m.
Peterhead	1.552	1.601	-0.049	11/12 lower flows/loads, plus inflation -£0.057m, tax +£0.008m.
Fraserburgh	1.834	1.950	-0.116	11/12 lower flows/loads, plus inflation -£0.124m, tax +£0.008m.
Lossiemouth	4.272	4.665	-0.393	11/12 penalties -£0.062m, lower flows/loads, plus inflation -£0.360m, tax +£0.055m, 10/11 included Moycroft storm tank lining +£0.019m, and Splitting of electricity supply +£0.007m.
Buckie	2.528	2.974	-0.446	11/12 lower flows/loads, plus inflation -£0.463m, tax +£0.017m.
Banff/Macduff	2.986	3.450	-0.464	11/12 lower flows/loads, plus inflation -£0.473m, tax +£0.009m.
Seafield	19.245	17.097	2.148	11/12 based on 100% compliance with the contract +£0.150m, plus inflation +£1.012m, tax +£0.175m, Seafield Odour Improvement project +£1.559m, higher business rates +£0.070m, and release of accruals -£0.139m.
Newbridge	2.786	2.475	0.311	
East Calder	1.519	1.350	0.169	
Blackburn	0.760	0.675	0.085	
Whitburn	1.013	0.900	0.113	
Levenmouth	12.209	11.521	0.688	11/12 lower flows, plus inflation +£0.785m, tax +£0.242m, paper mill charges -£0.150m, additional trader +£0.148m, COPA charges +£0.002m, release of accruals -£0.359m,

Site	11/12 £m	10/11 £m	Variance £m	Comment
				10/11 included of accruals - £0.017m.
Dalmuir	10.440	10.240	0.200	11/12 higher flows, plus inflation +£0.166m, tax +£0.135m, higher business rates +£0.031m, Annual operations compensation payment +£0.200m, centrifuge project +£0.065m, additional works +£0.019m, Swap Extension - £0.098m, accrual reversals - £0.125m, 10/11 included additional works +£0.239m , and release of accruals -£0.046m.
Daldowie	19.960	18.007	1.953	11/12 higher sludge volumes plus inflation +£1.161m, tax +£0.565m, necessary change costs -£0.073m, additional works +£0.024m, higher business rates +£0.017m, claim excess ragging +£0.060m, release of accrual -£0.081m, 10/11 included release of accruals - £0.280m,
Meadowhead	7.716	6.940	0.776	11/12 service fee inflation +£0.204m, Landfill Tax & Gas cost - £0.065m, higher rates +£0.018m, trader necessary change -£0.185m, additional works +£0.668m, tax +£0.157m, accrual reversals - £0.324m, 10/11 included release of accruals - £0.303m.
Stevenston	4.141	3.325	0.816	11/12 higher flows, plus inflation + £0.291m, trader necessary change - £0.310m, additional works + £0.750m, tax +£0.029m, higher business rates +£0.012m, release of accruals -£0.197m, 10/11 included release of accruals - £0.241m
Inverclyde	3.699	3.291	0.408	11/12 higher flows, plus inflation +£0.130m, tax +£0.023m, additional works +£0.250m, higher business rates +£0.005m.
TOTAL	**142.893**	**134.397**	**8.496**	

E3a.27 Public sector capital equivalent values

Values were derived from the base model incorporated in a report to the Transport and Environment Committee on 21 June 2001 adjusted for inflation. At Daldowie the PPP cost was used in the absence of a PSCE value, similarly for Levenmouth and AVSE the values have been taken from the 01/02 WIC return.

E3a.28 Contract period

The period quoted is the Contract Period as defined in the Contract.

E3a.29 Contract end date

The Contract end date is as defined in the Contract.

Table E4 Water Explanatory Factors - Resources and Treatment

E4.1-12 Source Types

E4.1-5 Source Types

The number of sources has decreased by 8 to 304. This reduction has arisen principally because a number of previously reported sources supplying water treatment works (WTW) were closed during 2011/12. A further 2 sources have changed from Direct to Indirect due to WTW re-allocation (Dodburn to Roberton) and are therefore now not counted as unique sources. A further 2 sources which were used as emergency in 2010/11 have been removed as they were not used in 2011/12 (Barclye WTW). Details are provided in the table below:

	2010/11 No. of sources	*312*
Reductions	WTW closures	-7
	Changed from Direct to Indirect	-2
	Emergency Sources	-2
Additions	New sources	+3
	2011/12 No. of sources	**304**

Distribution input (DI) reduced by 104.648 Ml/d to 1895.430 Ml/d.

Changes to DI this year are detailed in the table below:

Source Type	**2010/11**	**2011/12**	**Net Change**
	Ml/d		
Impounding reservoirs	1436.087	1415.401	-20.686
Lochs	33.128	32.112	-1.016
River and burn abstractions	460.934	383.732	-77.201
Boreholes	69.929	64.184	-5.745
Total	**2000.078**	**1895.430**	**-104.648**

As in previous years, we have completed columns 110–140 by assuming that, where multiple sources feed a WTW, the total average daily output comes only from the primary source. The primary source is therefore allocated 100% of the DI and all other sources are allocated 0%.

The confidence grade for the Lines E4.1 to E4.5 remains at B3. Although the WTW to Source connection information and the Direct/Indirect status is now held in a corporate system, Ellipse, the CG of the DI data included in the lines remains as B3.

E4.6-7 Bulk water exports and imports

We do not have any raw water exports or imports. Accordingly, a confidence grade of A1 has been entered for these lines.

E4.8-12 Proportion of own source output

There were only minor changes to the source type proportions of total distribution input (DI) this year.

E4.13 Peak demand - peak to average ratio

This line reports the ratio A: B where –

> A = the average daily volume into supply in the peak seven day period in the peak year of the preceding five years
>
> B = the average daily volume into supply in the peak year of the preceding five years

The peak year of the last five years was 2007/2008. In that year, A was 2270.145 Ml/d and B was 2311.273 Ml/d. The peak to average ratio is therefore 1.018.

No changes were made to the process or methodology used to report this line. As the figure is based on weekly reported distribution input (DI), the confidence grade assigned to it is based on the confidence grade of the DI in the peak year. The confidence grade is therefore C3, the same as that for the DI data in AR08.

E4.14 Average pumping head – resources and treatment

The reported Average Pumping head this year is 26.7m, a decrease of 0.3m from the previous year.

As limited flow and pressure data is available, the methodology used was to update last year's figures by calculating the change to the "Work Done" (m^4) at regional level based on the proportional (regional) change to DI. This figure was then divided by the Regional DI to obtain the Regional Pumping Head, which was then aggregated.

Although the definitions include a requirement to report on interstage pumping for this line, we have again not included any such information due to insufficient data in this area.

Pumping head data

We note that due to data limitations our confidence grade has remained at C4. We currently have a limited dataset from which we extrapolate an overall pumping head value across the whole of Scottish Water. We acknowledge that further work is required to improve the quality of this data.

E4.20-26 Water Treatment Works by Process Type

The number of water treatment works (WTW) decreased by 12 to 272; the total distribution input (DI) reduced by 104.7 Ml/d to 1,895.4 Ml/d.

The process for completing Table E is the same as for previous years. Changes to the numbers of WTW by process type have arisen as a result of operational changes this year.

Note: Table E reports all WTW that provided water into supply at any time during the year.

The confidence grade for the number of WTW remains at B2. The confidence grade for total DI remains at B3.

E4.28-39 Water Treatment Works by Size Band

Changes to the number of water treatment works (WTW) in use and proportions (%) of total distribution input (DI) this year are broken down by WTW size band in the table below:

Size Band	2010/11		2011/12		Net Change	
	No.	*% (1)*	*No.*	*%*	*No.*	*%*
<= 1 Ml/d	163	1.1	153	1.2	-10	+0.1
>1, <= 2.5 Ml/d	26	1.3	25	1.3	-1	0
>2.5, <= 5 Ml/d	30	3.6	28	3.5	-2	-0.1
>5, <= 10 Ml/d	16	4.3	17	4.4	1	+0.1
>10, <= 25 Ml/d	21	11.7	20	11.9	-1	+0.2
>25, <= 50 Ml/d	12	14.3	12	15.1	0	+0.8
>50, <= 100 Ml/d	10	24.6	10	24.2	0	-0.4
>100, <= 175 Ml/d	4	16.3	5	17.2	1	+0.9
>175 Ml/d	2	22.8	2	21.2	0	-1.6
Total	**284**		**272**		**-12**	
Notes: (1) Does not tally to 100% due to rounding;						

The confidence grade for proportion of total DI remains at C3.

E4.15-39 Functional costs by operational area, process and size band

Water Resources & Treatment E4.19

	Total
Functional expenditure:	£m
2011/12	53.330
2010/11	49.103
Variance	**(4.227)**

Water resources and treatment costs increased by £4.2m (8.6%) from 2010/11. This is analysed as follows:

- £1.1m (8.7%) increase in employment costs due to increased WTW operating costs due to wet summer, incidents and focus on water quality OPA improvements of £1.1m;
- £0.9m (9.2%) decrease in power costs is primarily due to the increase in energy generation credits of £0.8m; leakage volume reduction of £0.5m; and unit price reductions of £0.5m; offset by carbon tax of £0.8m and additional costs resulting from capital investment of £0.3m;
- £0.2m (8.4%) increase in hired and contracted costs is due to increase operating costs partly due to incidents adding £0.5m; and additional costs resulting from

capital investment of £0.2m; offset by a decrease in restructuring costs (PACE project) of £0.5m;

- £0.4m (4.3%) increase in materials and consumables due to: chemical price rises of £0.3m; and additional costs resulting from capital investment of £0.1m;
- £0.1m (2.6%) decrease in SEPA charges;
- £0.1m (5.0%) increase in other direct costs; and
- £3.3m (37.7%) increase in general and support costs due to increased VR and restructuring costs of £0.7m; an increase in asset management operational activity of £1.1m; and an increase in support costs of £0.8m.

Water resources and treatment costs analysed by region:

Functional expenditure:	North £m	East £m	South £m	West £m	Total £m
2011/12	12.306	14.157	10.855	16.012	**53.330**
2010/11	11.376	12.742	10.190	14.795	**49.103**
Variance	**(0.930)**	**(1.415)**	**(0.665)**	**(1.217)**	**(4.227)**

Analysis of water resources and treatment costs by process type:

Changes to the numbers of WTW by process type have arisen as a result of operational changes and process re-classifications in WTW during 2011/12. Re-stating 2010/11 figures on like-for-like basis shows the following variations:

Process Type	2011/12 £m	2010/11 £m	Variance £m
SD : Simple Disinfection	1.789	1.797	+0.008
W1 : SD plus simple physical or chemical treatment	0.164	0.186	+0.022
W2 : Single stage complex physical or chemical treatment	6.244	6.718	+0.474
W3 : Multiple stage complex treatment, excluding W4	28.793	27.548	(1.245)
W4 : Very high cost treatment Process	4.122	3.980	(0.142)
Direct	**41.112**	**40.229**	**(0.883)**
General and Support	12.218	8.874	(3.344)
Total	**53.330**	**49.103**	**(4.227)**

Analysis of water resources and treatment costs by size band:

Size band	2011/12 £m	2010/11 £m	Variance £m
<=1 Ml/d	5.823	5.326	(0.497)
>1 to <=2.5 Ml/d	2.680	2.291	(0.389)
>2.5 to <=5 Ml/d	3.948	3.887	(0.061)
>5 to <=10 Ml/d	3.765	3.735	(0.030)
>10 to <=25 Ml/d	7.355	7.660	+0.305
>25 to <=50 Ml/d	5.993	5.912	(0.081)
>50 to <=100 Ml/d	5.262	4.687	(0.575)
>100 to <=175 Ml/d	3.513	3.257	(0.256)
>175 Ml/d	2.773	3.474	+0.701
Direct	**41.112**	**40.229**	**(0.883)**
General and Support	12.218	8.874	(3.344)
Total	**53.330**	**49.103**	**(4.227)**

Movements in individual works explain the increases and decreases by category and size band. Some of the larger movements, which do not follow the profile of overall movements, are explained as follows:

- Balmore WTW [West, 175+ Ml/d, W3] decreased £0.3m due to rezoning of outputs to other works within the scheme;
- Bayhead WTW [North, 1-2.5 Ml/d, W3] increased £0.1m due to a water quality incident;
- Burncrooks WTW [West, 10-25 Ml/d, W3] decreased £0.2m due to water quality issue in prior year;
- Glencorse WTW [South, 100-175 Ml/d, W4] replaced Alnwickhill WTW [South, 50-100 Ml/d, W4] and Fairmilehead WTW [South, 100-175 Ml/d, W3] during February 2012 with a net decrease of £0.1m;
- Glendevon WTW [East, 50-100 Ml/d, W2] increased £0.2m due to chemical spill incident;
- Lintrathen WTW [East, 25-50 Ml/d, W2] decreased due to energy generation credits of £0.2m (includes £0.1m for prior years);
- Loch Calder WTW [North, 10-25 Ml/d, W3] decreased due to energy generation credits of £0.1m;
- Milngavie WTW [West, 175+ Ml/d, W2] decreased due to energy generation credits of £0.5m (includes £0.3m for prior years).

Costs which are directly attributable to abstraction and treatment are charged to the specific asset cost code in Peoplesoft, either via direct charging, Ellipse timesheets or work orders. Of the £41.1m (E1.8) total direct resource and treatment costs, £37.4m of costs or 90.9% (£41.7m less £3.2m distribution costs) have been directly charged to assets in our corporate costing system.

Other costs have been allocated to Water Resources and Treatment through ABM support activity allocation, e.g. stores based on number of issues, IT applications based on number of users, etc. Therefore, support costs are allocated on a resource consumed basis. However, many of these costs are not specific to an asset; they are generally attributable to an employee. It follows that the majority of these support costs should be allocated to the activities the employees have been completing.

Confidence Grades – Confidence grades on Table E4 are consistent with grades in the general E table commentary.

Direct costs are predominantly captured in the core corporate financial system, with labour costing feeds from the core corporate works management system. A high proportion of direct costs are captured by asset, hence the A2 confidence grade. A smaller proportion of costs – mainly general and support costs – remains to be allocated to works by means other than direct capture.

Table E6 Water Distribution

E6.1 Annual average resident connected population

The annual average resident connected population increased by 21,368 to 5,077,875. This figure is consistent with the figure reported in A2.1.

The methodology used to allocate population to 4 operational regions remains unchanged from the method used last year.

The confidence grade remains at A2.

E6.2 Total connected properties

The total number of connected properties has increased by 10,460 to 2,581,508. This figure is consistent with the figure reported in A1.10.

The methodology used to allocate properties to 4 operational regions remains unchanged from the method used last year.

The confidence grade remains at B2.

E6.3 Volume of water delivered to households

The volume of water delivered to households decreased by 15.5 Ml/d to 826.6 Ml/d. This figure is consistent with the sum of the figures reported in A2.11 and A2.12.

The volume was calculated by operational region using the property figures calculated for line E6.2, multiplied by the regional specific Per Household Consumption figure. In previous years the average Scottish Water consumption figure was applied to each region.

The confidence grade has improved to B2 at Regional level due to more accurate consumption rates being available at regional level and remains at B2 for the Scottish total.

E6.4 Volume of water delivered to non-households

The volume of water reported as delivered to non-households decreased by 8.0 Ml/d to 428.8 Ml/d. This figure is consistent with the sum of the figures reported in A2.13 and A2.14.

Measured and unmeasured non-household volumes are allocated to water operational areas and summed to regional level; the method remains unchanged from last year.

The confidence grade remains unchanged at B4.

E6.5 Area

There has been no change to the operational regions in the last year and the area has remained the same at 79,796km^2.

The confidence grade remains at A1, reflecting the fact that the operational region boundaries are taken directly from the corporate GIS.

E6.6 Number of supply zones

The number of supply zones decreased by 5 to 310.

This was calculated using the same methodology as last year and matches the number reported to the Drinking Water Quality Regulator.

Changes in zones topology are tracked and recorded by the Water Quality Regulation Zone procedure and have a full audit trail.

The confidence grade remains at A1.

E6.7-11 Functional Cost

Water Distribution E6.11

	Total
Functional expenditure:	£m
2011/12	64.692
2010/11	70.069
Variance	**+5.377**

Water distribution costs decreased by £5.4m (7.7%), from 2010/11. This is analysed as follows:

- £3.9m (14.7%) decrease in employment costs due to: efficiencies generated by PACE project of £1.3m; reduction in leakage detection effort of £1.8m; and reduction in extreme weather costs of £0.8m;
- £0.8m (10.3%) decrease in power costs primarily due to reduction in extreme weather pumping £0.5m; leakage volume reduction of £0.4m; and unit price reduction of £0.4m; offset by carbon tax of £0.5m;
- £2.0m (14.3%) decrease in hired and contracted services due mainly to a reduction in extreme weather costs of £1.4m, mainly burst repairs; and decrease in restructuring costs (PACE project) of £0.7m;
- £0.2m (13.5%) decrease in materials and consumables due mainly to extreme weather related costs of £0.3m;
- £1.7m (73.7%) increase in other direct costs due to insurance claim costs of £2.1m, including claims for water in gas pipes of £1.0m and water incidents of £0.8m; and
- £0.1m (0.8%) decrease in general and support costs due to decrease in support costs of £0.3m; offset by increased VR and restructuring costs of £0.6m; an increase in asset management operational activity of £0.3m.

Water distribution costs are analysed by region:

	North	**East**	**South**	**West**	**Total**
Functional expenditure:	£m	£m	£m	£m	£m
2011/12	8.615	17.754	18.467	19.856	**64.692**
2010/11	10.125	19.091	19.962	20.891	**70.069**
Variance	**+1.510**	**+1.337**	**+1.495**	**+1.035**	**+5.377**

Confidence Grades – Confidence grades on Table E6 are consistent with grades in then general E table commentary.

Direct costs are predominantly captured in the core corporate financial system, with labour costing feeds from the core corporate works management system. A high proportion of direct costs are captured by asset or zone, hence the A2 confidence grade.

Scottish Water has slightly lower confidence levels on Network cost analysis than treatment cost analysis. This is due to lower levels of direct labour capture on Networks.

E6.12-16 Potable mains

There were no significant changes in the figures of Bands 1-4 or total length of mains, with a total increase in length of 202 km (0.42%).

The inventory is reported from our corporate GIS, where the diameter field is populated to 99.4% leaving only 283km (0.6%) of mains not populated with diameter. The default value used to infill is DN150, falling into Band 1, which is the largest band.

Bands coincide with nominal size bands for newer materials, which are based on external diameter and use size bands from previous returns.

The confidence grades remain at B2.

E6.17 Total length of unlined iron mains

The total length of unlined iron mains increased slightly by 1.24 km (0.01%) to 13,352.3km. This was due to the update of offline data into GIS.

The report relies on population of the material and lining attributes in the inventory.
154km of GIS potable main was populated by the Infill material model and is defaulted to unlined spun iron, constituting less than 0.3% of reported value.

The information available for pipe lining is not fully complete, with 41% of ferrous inventory having null or unknown lining attribute. GIS lining attribute signified as bitumen and unknown for cast, grey and spun iron is included as unlined iron main. Ductile iron is assumed to be cement lined where the lining material is unknown and totals 1,841km.

The confidence grade remains at B2.

E6.18 Total length of mains >300mm diameter

The total length of mains greater than 300mm diameter increased by 25.7km to 3,882.4km.

The inventory is reported from our corporate GIS, where the diameter field is populated to 99.4% leaving only 283km (0.6%) not populated with diameter. As the default value used to infill is DN150, with no adjustment for statistical spread, the length of mains greater than 300mm diameter may be marginally under-reported, but still safely remains inside the reported confidence grade banding.

The confidence grade remains at B2.

E6.19 Water mains bursts

The number of water mains bursts has decreased by 1,094 to 8,757 over the report year representing an 11% reduction on last year.

Scotland experienced one of the mildest winters on record this year. This is reflected in the overall decreasing trend in the number of bursts throughout the report year, with the exception of February which saw an increase of 35% on last year. Most of the UK saw a mini freeze / thaw event in early February which undoubtedly attributed to this increase.

The trend over the last two years has generally been of a decrease in the number of customer reported bursts, with a 4.2% decrease during 2010/11 and a further 9.8% decrease during the report year. In 2010/11 there was a 4% decrease in the number of non-customer-reported bursts and a further 16.4% decrease in the report year.

The annual number of non-customer-reported bursts for the reporting year is 18% of the total number of bursts, leaving 82% being customer reported bursts. This split is comparable to last year.

The confidence grade remains at B3.

E6.20 Leakage level

The reported top-down leakage level has decreased by 96.2 Ml/d from 756.9 Ml/d in 2010/11 to 660.7 Ml/d in 2011/12.

The confidence grade remains at B3.

We also report leakage in terms of Maximum Likelihood Estimation (MLE) leakage in A and G tables. Our MLE reported leakage for 2011/12 is 629.2 Ml/d which is a 69.9 Ml/d reduction on our reported MLE leakage of 699.1 Ml/d for 2010/11.

E6.21 Properties reported for low pressure

The overall number of low pressure properties has reduced from 1,962 to 1,542. Targeted investment and operational changes have improved pressure to 495 properties during 2011-12. 130 properties have been recorded as being added to the register due to investigation work, through customer complaints, or due to better information. Further investigation work has also resulted in 64 properties being removed through better information. Two properties were added as a result of asset deterioration and 7 properties have been added due to operational changes.

The confidence grade remains at B2.

20011/12 Properties reported for low pressure	*1,962*
Removed due to operational improvements	-335
Removed due to asset improvements	-160
Removed due to better information	-64
Added due to asset deterioration	+2
Added due to better information	+130
Added due to operational changes	+7
2011/12 Properties reported for low pressure	**1,542**

E6.22-25 Pumping Stations

E6.22 Total number of pumping stations

The total number of pumping stations increased by 7 to 571. The table below shows the change in the number of stations recorded in the corporate asset inventory as being operational during this year:

2010/11 No. of pumping stations	*564*
Stations removed	-8
Stations added	15
2011/12 No. of pumping stations	**571**

The confidence grade remains at B2.

E6.23 Total capacity of pumping stations

The total capacity of pumping stations is 2,329,803 m3/d.

The change recorded this year is attributed to the increase in asset numbers and improved data quality. The increase in data available has resulted in an increase in the capacity reported.

The confidence grade has remained at C4, reflecting the level of extrapolation used to derive the reported figures.

E6.24 Total capacity of booster pumping stations

The total capacity of booster pumping stations increased by 135.8 kW to 41,446.4 kW.

Our methodology for determining the design capacity (in kW) of stations remains unchanged.

The confidence grade remains at C3.

E6.25 Average pumping head

Average pumping head is reported as 30.30m this year. This reflects a decrease of 0.13m on the previous year.

As limited new flow and pressure data is available, the methodology used was to update last year's figures by calculating the change to the "Work Done" (m^4) at regional level based on the proportional change to DI. This figure was then divided by the Regional DI to obtain the Regional Pumping Head, which was then aggregated.

Pumping head data

We note that due to data limitations our confidence grade has remained at C4. We currently have a limited dataset from which we extrapolate an overall pumping head value across the whole of Scottish Water. We acknowledge that further work is required to improve the quality of this data.

E6.26-27 Service Reservoirs

The total number of service reservoirs decreased by 7 to 1,404. During the year 11 new service reservoirs were commissioned. The changes are generally the result of operational revisions across the network.

The total capacity of service reservoirs increased by 5.5 Ml to 3,831.5 Ml.

The confidence grades remain at B2.

E6.28-29 Water Towers

The total number of water towers increased by 1 to 21. This increase was due to one tower being re-instated.

The total capacity of water towers decreased by 6.6 Ml to 32.1 Ml. This decrease is mainly due to data improvement of water tower capacities.

The confidence grades remain at B2.

Table E7 Wastewater Explanatory Factors - Sewerage & Sewage treatment

E7.1 Annual average resident connected population

The annual average resident connected population increased by 20,161 to 4,787,311.

The confidence grade remains at B2.

E7.2 Annual average non-resident connected population

The annual average non-resident connected population increased by 9,756 to 79,687.

As with previous years, tourist population has been determined on the basis of average bed spaces multiplied by an average occupancy factor. Average occupancy rates are taken from VisitScotland's latest available Tourism in Scotland report. The occupancy rate for the peak summer month is set at 2/3rds as recommended by the Commission.

The confidence grade remains at C4.

E7.3 Volume of sewage collected (daily average)

The daily average volume of sewage collected decreased by 55.5 Ml/d to 2,993.4 Ml/d. This decrease was as a result of slightly less rainfall during the reporting year.

The average daily volume collected has been calculated as the flow which arrives in a public sewer (of any type) from any source e.g. rainfall, infiltration, domestic use, industrial use, tidal flows and connected watercourses. The approach used is the same as that in previous years and has been applied consistently across the country. It uses data sets for rainfall, connected properties and sewered areas consistent with the wastewater element of the Annual Return.

The flow has been calculated in two parts; the dry weather flow and the storm flow.

Dry Weather Flow: A factor has been established that relates the number of connected properties to the amount of sewer flow in periods without rainfall. To establish this figure a number of recordings of flows with a known connected population were analysed to establish a range of flow per connected population. These factors were averaged and applied to all sewered areas to establish a total dry weather flow contribution per sewered area.

Storm Flow: The storm flow element was calculated by using existing sewer models to establish a relationship between rainfall depth, area of the sewered area and the amount of run-off generated. A selection of models was used and an average value of run-off per millimetre rainfall per hectare of sewered area was established. This was then applied to each sewered area to establish a total storm flow contribution per sewered area.

The total sewage collected was calculated (dry weather plus storm flows) for each sewered area and a total for each operational region calculated.

This figure includes all flows that are collected by the wastewater network but does not necessarily relate to the flows that arrive at treatment sites as a proportion of flows will be discharged via overflows and other flows collected by storm sewers will be discharged without treatment.

The confidence grade remains at C4.

E7.4 Total connected properties

The total number of connected properties figure increased by 10,684 to 2,459,750.

This rise reflects the increase in properties connected to the wastewater network as reported in A1.21.

The confidence grade remains at B2.

E7.5 Area of sewerage district

The area of sewerage district has remained at 79,796km^2, the same as last year.

The boundaries were redrawn in our corporate GIS in AR11 to reflect the change from eight to four operational areas and there have been no changes since then.

E7.6 Drained area

The drained area decreased slightly by 3 km^2 to 1,892km^2. This fall is as a result of ongoing verification of the sewered areas in our corporate GIS.

The confidence grade has increased from B2 to A2 as the data now comes directly from our corporate system, GIS.

E7.7 Annual precipitation

During 2011/12 annual precipitation was 1,135mm, which is 59 mm lower than in 2010/11.

We have again used radar rainfall data from the Met Office as the source data for this line. This gives rainfall intensities at five minute intervals using a 1km grid spacing.

The confidence grade remains at A2.

E7.8 Total length of sewer

The total length of sewer increased by 246km to 50,658km. This increase is comprised of: an increase of 215km of main sewer; an increase of 31km of rising main.

The information comprises our GIS inventory (33,664km), an off-inventory addition of missing sewers (466km) and a statistical calculation of lateral sewer length from unit length connections by dwelling (16,528km).

The confidence grade remains at C4.

E7.9 Total length of lateral sewer

The total length of lateral sewer has increased by 73km to 16,528km. The calculation used is based on the number of properties connected to the wastewater network (connected properties). These are supported by a proximity calculation which allocates the Ordnance Survey Address Point References (OSAPRs) located within 70m of the wastewater network. This is the same methodology as used in previous returns. CACI house type proportions in each operational region are also used as part of this calculation.

The number of connected properties reported has increased by 0.43%. New data from our corporate GIS, on properties having sewers within 3 metres, has refined the lateral sewer

calculation, increasing the rise in inventory due to the refinement of the number of properties connected to the wastewater network.

Unit lengths of lateral sewer are derived from a 2004 survey and checked for validity in 2012 by a GIS desktop study. The figures use dwellings/premises numbers rather than Ordnance Survey property seed points. The statistical sample size is not, however, large enough for the allocation of a high confidence grade.

The confidence grade remains at C4.

E7.10 Length of combined sewer

The length of combined sewer has increased by 5km to 17,467km.

As modern sewerage systems are constructed with separate foul and storm sewers for new builds, any rise in length of combined sewer results from legacy record data being added to the corporate system and any outfall pipe construction.

The figure is derived from a record inventory with known gaps in asset stock; however sewer usage is populated to high levels. No off-inventory allowance is made for combined sewers.

The confidence grade remains at B2.

E7.11 Length of separate stormwater sewer

The length of separate storm sewer increased by 20km to 8,113km. This increase is due to the newly constructed sewers with separate foul and storm sewers for new builds.

The figure is derived from a record inventory with known gaps in asset stock, however sewer usage is populated to high levels.

The confidence grade remains at B2.

E7.12 Length of sewer >1,000mm diameter

The length of sewer greater than 1,000mm diameter increased by 7km to 865km. Continuing asset recording activity from our capital investment programme is resulting in a consistent rise in this figure.

The figure is derived from a record inventory with known gaps in asset size attribute. Infill rule bases or missing inventory adjustments do not influence this size band.

The confidence grade remains at B2.

E7.13 Length of critical sewer

The length of critical sewer decreased by 10km to 11,482km. This decrease is mainly due to the movement of Critical sewers to Non-Critical Sewers.

The figure is derived from analysis of a record inventory with known gaps in asset stock.

The classification of critical sewers uses the WRc methodology for asset size, material, depth and proximity to particular features.

The confidence grade remains at B3.

E7.14 Sewer Collapses

The number of sewer collapses decreased by 2,446 from 5,132 to 2,686

The method used for calculating the sewer collapse figures this year is similar to previous years. Essentially the report returns Work Orders which have been assigned to standard job numbers from Ellipse which are assumed to be for the purposes of repairing collapsed sewers.

The confidence grade has been reduced to B5 for this line due to the outcome of the audits undertaken.

E7.15-19 Sewerage Costs

Sewerage E7.19

	Total
Functional expenditure:	£m
2011/12	38.104
2010/11	39.200
Variance	**+1.096**

Sewerage costs decreased by £1.1m (2.8%) from 2010/11. This is analysed as follows:

- £0.8m (5.5%) decrease in employment costs due mainly to efficiencies generated by PACE project of £0.8m;
- £0.8m (15.0%) increase in power costs due mainly to carbon tax of £0.5m; and increased consumption at sewage pumping stations due to wet summer and winter of £0.2m;
- £2.7m (38.2%) decrease in hired and contracted costs due to a reduction in sewer intervention activity as a result of resolving repeat blockages of £1.9m; reduction in extreme weather costs of £0.4m; and a decrease in restructuring costs (PACE project) of £0.5m;
- £0.1m (10.5%) decrease in materials and consumables on network maintenance activity;
- £0.4m (40.4%) increase in SEPA charges due mainly to change from Point Discharge to Sewer Network Licences (SNL) for the sewer network;
- £0.2m (21.4%) increase in other direct costs due to increase in insurance claim costs of £0.2m; and
- £1.0m (9.9%) increase in general and support costs due to: increased VR and restructuring costs of £0.5m; and increase in asset management operational activity of £0.4m; offset by reduced support costs of £0.2m.

Sewerage costs are analysed by region:

	North	**East**	**South**	**West**	**Total**
Functional expenditure:	£m	£m	£m	£m	£m
2011/12	4.828	10.339	10.789	12.148	**38.104**
2010/11	6.443	12.542	10.756	9.459	**39.200**
Variance	**+1.615**	**+2.203**	**(0.033)**	**(2.689)**	**+1.096**

E7.20-29 Pumping Stations

E7.20 Total number of pumping stations

The total number of pumping stations increased by 20 to 2,052.

A pumping station is defined as an individual site (i.e. not an individual pump). It includes foul, combined and stormwater pumping stations situated at treatment works but excludes inter-stage pumping.

The confidence grade remains at B3.

E7.21 Total capacity of pumping stations (m3/d)

The total capacity of pumping stations decreased by 110,177 m3/d to 12,062,753 m3/d.

This figure is based on extrapolated corporate data as not all stations have a design capacity in m3/d recorded in the corporate asset inventory.

The confidence grade remains at C4, reflecting the level of extrapolation used to derive the figure.

E7.22 Total capacity of pumping stations (kW)

The total capacity of pumping stations decreased by 427 kW to 74,269 kW.

Our methodology for determining the design capacity (in kW) of stations is the same as last year, therefore the increase is due to revisions to the assets.

The confidence grade remains at C4.

E7.23 Average pumping head

The average pumping head is reported at 29.7m this year representing a decrease of 0.3m compared with the previous year. This figure has been calculated by addition, deletion and correction of the known pumping data contained in the spreadsheet from AR09.

We note that due to data limitations our confidence grade has remained at C5. We currently have a limited dataset from which we extrapolate an overall pumping head value across the whole of Scottish Water. We acknowledge that further work is required to improve the quality of this data.

E7.24 Total number of combined pumping stations

The total number of combined pumping stations increased by 6 to 1,301.

The confidence grade remains at B3.

E7.25 Total capacity of combined pumping stations

The total capacity of combined pumping stations decreased by 99,010 m3/d to 9,875,061 m3/d.

The change recorded this year is mainly attributed to the change in ownership of some assets.

The confidence grade has remained at C4, reflecting the level of extrapolation used to derive the reported figures.

E7.26 Total number of stormwater pumping stations

The total number of stormwater pumping stations increased by 1 to 36.

The confidence grade remains at B3.

E7.27 Total capacity of stormwater pumping stations

The total capacity of stormwater pumping stations increased by 1,291 m3/d to 271,899 m3/d.

The confidence grade remains at C4.

E7.28 Number of combined sewer overflows

The number of combined sewer overflows (CSOs) decreased by 27 to 3,145.

Work on unsatisfactory intermittent discharge initiatives continued this year, resulting in a net reduction in the number of CSOs. In addition, drainage area studies have identified some CSOs that have been abandoned and errors in the source data.

The confidence grade remains at A3.

E7.29 Number of combined sewer overflows (screened)

The reported number of combined sewer overflows (CSOs) with screening in place increased by 25 to 920. Screened CSOs constitute 29.2% of the total number of CSOs reported in E7.28. The increase is primarily due to capital investment in new CSOs and screens from the UID programme. The confidence grade remains at A3.

E7.30 Number of sewage treatment works

There is no significant change in the number of sewage treatment works (WWTW) which increased by 7 to 1,912.

The confidence grade remains at A3.

E7.31 Total load

The total load decreased by 2,466 kg BOD/day to 225,418 kg BOD/day. This reduction reflects the net change in the constituent components of the works loads. Due to rounding the individual differences may not add up to the total difference.

The load consists of the following constituents:

- Population
- Tourist
- Non-domestic load
- Trade effluent
- Imported private septic tanks
- Imported public septic tanks
- Imported other loads

- Imported WWTW sludge
- Imported WTW sludge
- Sludge return liquors

Population (71.08% of total load)
The population load increased by 697 kg BOD/day. The increase in population load is a reflection of the increase in population reported in line E7.1.

Tourist (1.42% of total load)
The tourist load increased by 397 kg BOD/day. This increase is connected to the change in the source data as described in the commentary for line E7.2.

Non-domestic load (10.15% of total load)
The non-domestic load increased by 460 kg BOD/day. Due to the opening of the water industry retail market to competition in April 2008, the source of this data is now the Central Market Agency.

Trade effluent (14.82% of total load)
The trade effluent load decreased by 4,452 kg BOD/day. Due to the opening of the water industry retail market to competition in April 2008, the source of this data is now the Central Market Agency.

Imported private septic tanks (0.13% of total load)
The imported private septic tanks load increased by 147 kg BOD/day.

Imported public septic tanks (0.05% of total load)
The imported public septic tanks load decreased by 95 kg BOD/day.

Imported other loads (0.15% of total load)
The imported other load decreased by 117 kg BOD/day.

Imported WWTW sludge (1.37% of total load)
The imported WWTW sludge load increased by 399kg BOD/day.

Imported WTW sludge (0.70% of total load)
The imported WTW sludge load increased by 76 kg BOD/day.

Sludge return liquors (0.13% of total load)
The sludge return liquor load increased by 22 kg BOD/day.

The confidence grade remains at B3.

E7.32-36 Sewage Treatment Costs

Sewage Treatment E7.36

	Total
Functional expenditure:	£m
2011/12	42.771
2010/11	41.677
Variance	**(1.094)**

Sewage treatment costs increased by £1.1m (2.6%) from 2010/11. This is analysed as follows:

- £0.1m (0.4%) decrease in employment costs;
- £0.7m (5.9%) increase in power costs due to carbon tax of £1.0m; and additional costs resulting from capital investment of £0.5m; partly offset by reduced consumption and lower prices of £0.6m;
- £0.1m (8.0%) decrease in hired and contracted costs due to a decrease in restructuring costs (PACE project) of £0.4m; offset by additional operating costs as a result of capital investment of £0.2m;
- £0.5m (32.4%) decrease in materials and consumables mainly due to more robust identification of sludge chemical costs at shared sewage/sludge sites of £0.4m; partly offset by additional costs resulting from capital investment of £0.1m;
- £0.1m (0.9%) decrease in SEPA costs;
- £0.1m (16.2%) increase in other direct costs mainly due to the piloting of the operations Digital Platform project ; and
- £0.9m (12.0%) increase in general and support costs mainly due to increased VR and restructuring costs of £0.4m; increase in asset management operational activity due to switch from capital to operational planning of £0.2m; and an increase in support costs of £0.3m.

Sewage treatment costs are analysed by region:

	North	**East**	**South**	**West**	**Total**
Functional expenditure:	£m	£m	£m	£m	£m
2011/12	6.999	10.175	13.478	12.119	**42.771**
2010/11	7.016	10.345	12.941	11.375	**41.677**
Variance	**+0.017**	**+0.170**	**(0.537)**	**(0.744)**	**(1.094)**

Confidence Grades – Confidence grades on Table E7 are consistent with grades in then general E table commentary.

Direct costs are predominantly captured in the core corporate financial system, with labour costing feeds from the core corporate works management system. A high proportion of direct costs are captured by asset or zone, hence the A2 confidence grade.

Scottish Water has slightly lower confidence levels on Network cost analysis than treatment cost analysis. This is due to lower levels of direct labour capture on Networks.

Table E8 Wastewater Explanatory Factors - Sewage Treatment Works

E8.1-8 Sewage treatment works size bands

The total number of sewage treatment works (WWTW) increased by 7 to 1,912. Changes to the number of WWTW this year are broken down by size band and treatment category in the tables below:

Size Band	2010/11	2011/12	Net Change
0	1,156	1,164	8
1	225	226	1
2	157	156	-1
3	181	181	0
4	126	126	0
5	38	36	-2
6	22	23	+1
Total	1,905	1,912	+7

Treatment Category	2010/11	2011/12	Net Change
Septic Tanks	1,191	1,190	-1
Primary	55	54	-1
Sec Activated Sludge	182	181	-1
Sec Biological	284	293	+9
Tertiary A1	28	31	+3
Tertiary A2	16	18	+2
Tertiary B1	60	60	No change
Tertiary B2	14	17	+3
Sea Preliminary	14	15	+1
Sea Screened	2	2	No change
Sea Unscreened	59	51	-8
Total	1,905	1,912	+7

The confidence grade remains at B3.

E8.9 Small sewage treatment works with ammonia consent 5-10 mg/l

The number of small sewage treatment works with ammonia consent 5-10 mg/l has decreased by 2 to 53. The confidence grade remains at A1.

E8.10 Small sewage treatment works with ammonia consent <= 5 mg/l

The number of small sewage treatment works with ammonia consent <= 5 mg/l has increased by 2 to 53. The confidence grade remains at A1.

E8.11-18

The total average daily load, excluding septic tanks, decreased by 2,632 kg BOD/day to 219,733 kg BOD/day.

Changes to the total average daily load received this year are broken down by size band and treatment category in the below tables:

Size Band	2010/11	2011/12	Net Change
	Excluding septic tanks		
0	486	473	-13
1	1,154	1,168	14
2	2,236	2,258	22
3	10,650	10,681	31
4	35,788	36,570	782
5	33,795	31,187	-2,608
6	138,255	137,395	-860
Total	**222,365**	**219,733**	**-2,632**

Treatment Category	2010/11	2011/12	Net Change
Septic Tanks	5,519	5,686	+167
Primary	4,131	4,048	-83
Sec Activated Sludge	144,959	147,393	+2,434
Sec Biological	22,187	22,163	-24
Tertiary A1	24,827	23,601	-1,226
Tertiary A2	5,061	5,267	+206
Tertiary B1	8,441	8,432	-9
Tertiary B2	1,571	1,574	+3
Sea Preliminary	1,907	2,123	+216
Sea Screened	442	473	+31
Sea Unscreened	8,838	4,659	-4,179
Total	**227,883**	**225,419**	**-2,464**

The confidence grade remains at B3.

E8.19 Small sewage treatment works with ammonia consent 5-10 mg/l

The total average daily load at small sewage treatment works with ammonia consent 5-10 mg/l decreased by 515 kg BOD/day to 7,668 kg BOD/day.

The confidence grade remains at B3.

E8.20 Small sewage treatment works with ammonia consent <= 5 mg/l

The total average daily load at small sewage treatment works with ammonia consent <= 5 mg/l increased by 483 kg BOD/day to 12,202 kg BOD/day.

The confidence grade remains at B3.

E8.21-30 Compliance

The percentage compliance has been calculated on the basis of SEPA results. Our methodology for calculating compliance is the same as last year and, in the case of two-tier consents, all failures have been counted, not just upper-tier failures. WWTW that are not sampled are not included in the averaging process for individual treatment categories and size bands. The sampling period is the financial year 2011/12.

Four works (Craigellachie, Dallas, Huntly and Longriggend) are the subject of an appeal with SEPA but have been included as failing works in this table.

Where the cells in this section are listed as 0 and AX confidence grade, this means that there was no WWTW in that treatment category and size band thus there has been no sampling.

The average compliance has been maintained or improved at all WWTW treatment categories with the exception of Primary, Tertiary A1, Tertiary A2, and Tertiary B1.

The confidence grade remains at B2.

E8.29 Small sewage treatment works with ammonia consent 5-10 mg/l

The compliance at small sewage treatment works with ammonia consent 5-10 mg/l has been maintained or improved at all treatment categories with the exception of Tertiary B1.

The confidence grade remains at B2.

E8.30 Small sewage treatment works with ammonia consent <= 5 mg/l

The compliance at small sewage treatment works with ammonia consent <= 5 mg/l has been maintained or improved at all treatment categories that underwent sampling this.

The confidence grade remains at B2.

E8.31-42 Costs

Overall movements are explained in table Sewage Treatment E7.36 earlier in this commentary. The costs of treating and disposing of sludge are contained within Table E10 Sludge Treatment and Disposal.

Analysis of sewage treatment costs by size band:

Changes to the numbers of STW by process type have arisen as a result of operational changes and process re-classifications in STW during 2011/12. Re-stating 2010/11 figures on like-for-like basis shows the following variations:

	Septic tanks	Primary	Secondary	Tertiary	Sea Outfalls	Direct	General and Support	Total
Total treatment works	£m	£m	£m	£m	£m	£m	£m	£m
2011/12	2.584	1.048	23.328	6.680	0.339	**33.979**	8.792	**42.771**
2010/11	2.477	1.059	23.250	6.698	0.341	**33.825**	7.852	**41.677**
Variance	**(0.107)**	**+0.011**	**(0.078)**	**+0.018**	**+0.002**	**(0.154)**	**(0.940)**	**(1.094)**

Movements in individual works explain the increases and decreases by category. Some of the larger movements, which do not follow the profile of overall movements, are explained as follows:

- Bo'ness STW [South, Band 5, Secondary Activated Sludge] decreased £0.1m due to reduction in sewerage volumes of 50%.
- Inverurie STW [East, Band 5, Secondary Activated Sludge] increased by £0.1m due to the catch-up associated with prior year power costs.

Costs which are directly attributable to treatment are charged to the specific asset cost code in Peoplesoft, either via direct charging, Ellipse timesheets or work orders. Of the £34.0m (E2.7) total direct wastewater treatment costs, £31.4m of costs or 92.4% (£40.0m less £5.8m sludge costs plus £1.3m terminal pumping) have been directly charged to assets in our corporate costing system.

Other costs have been allocated to Wastewater Treatment through ABM support activity allocation, e.g. stores based on number of issues, IT applications based on number of users, etc. Therefore, support costs are allocated on a resource consumed basis. However, many of these costs are not specific to an asset; they are generally attributable to an employee. It follows that the majority of these support costs should be allocated to the activities the employees have been doing.

Confidence Grades – Confidence grades on Table E8 are consistent with grades in the general E table commentary.

Direct costs are predominantly captured in the core corporate financial system, with labour costing feeds from the core corporate works management system. A high proportion of direct costs are captured by asset, hence the A2 confidence grade. A smaller proportion of costs – mainly general and support costs – remains to be allocated to works by means other than direct capture.

Table E9 Large Sewage Treatment Works Information Database

E9.0a Name of operational area

The number of large non-PPP WWTW has increased by 1 to 22, this is because:

- an increase in imported private septic tank load has led to Galashiels being classified as large works;
- an increase in Trade effluent received has led to Girvan being classified as a large works; and
- a decrease in Trade effluent means Bo'ness is no longer classified as a large works

Large WWTW are defined as those that receive an average loading in excess of 1,500 kg BOD/day and is approximately equivalent to a population of 25,000.

E9.1 Population equivalent of total load received

The overall population equivalent of the total load received increased by 54,334 to 2,224,022.

Changes to the population equivalent of each large WWTW are detailed in the below table (due to rounding the total may not equal the sum of the individual values):

WWTW	2010/11	2011/12	Net Change	% Change	Classification change 2011/12
Allers	42,981	44,740	1,759	4.1%	
Alloa	43,493	45,057	1,564	3.6%	
Ardoch	62,081	57,753	-4,328	-7.0%	
Bo'ness	30,895	15,643	-15,252	-49.4%	Not a large works
Carbarns	47,077	46,321	-756	-1.6%	
Dalderse	110,504	92,463	-18,040	-16.3%	
Daldowie	290,897	269,697	-21,199	-7.3%	
Dalmarnock	216,033	239,124	23,090	10.7%	
Dunbar	33,467	33,973	507	1.5%	
Dunfermline	78,297	78,186	-111	-0.1%	
Dunnswood	30,952	30,753	-200	-0.6%	
Erskine	86,536	82,069	-4,467	-5.2%	
Galashiels	24,975	25,153	178	0.7%	Added in 2011/12
Girvan	16,960	50,573	33,613	198.2%	Added in 2011/12
Hamilton	63,106	63,586	479	0.8%	
Kinneil Kerse	50,937	48,626	-2,311	-4.5%	
Kirkcaldy	62,448	62,370	-78	-0.1%	
Laighpark (Paisley)	137,568	132,350	-5,218	-3.8%	
Perth	97,441	112,657	15,215	15.6%	
Philipshill	58,835	77,510	18,675	31.7%	
Shieldhall	517,577	519,078	1,501	0.3%	
Stirling	69,026	75,770	6,744	9.8%	
Troqueer	39,536	36,213	-3,323	-8.4%	
Total	2,211,623	2,239,665	28,042[1]		

[1] Includes movement in Bo'ness, Galashiels and Girvan.

The proportionally large changes seen at Bo'ness Dalderse, Dalmarnock, Girvan and Philipshill are due to changes in the trade effluent received at these works. The proportional increase at Perth is due to an increase in WWTW sludge imports.

As was stated earlier in the commentary, we now receive trade effluent data from the Central Market Agency.

The confidence grade remains at B3.

E9.2-7 Compliance

Consent data was taken from our corporate consents database. The most onerous of CAR or UWWT parameter was reported.

Confidence grades remain at A1, reflecting the fact that the data is obtained directly from our corporate consents database.

E9.2 Suspended solids content

All consent standards remained the same.

E9.3 BOD consent

There have been no changes to the BOD consent standards.

E9.4 COD consent

There have been no changes to the COD consent standards.

E9.5 Ammonia consent

There have been no changes to the ammonia consent standards.

E9.6 Phosphate consent

No phosphate consent standards have been set for any of the WWTWs.

E9.7 Compliance with effluent consent standard

We have used SEPA data from March 2011 to February 2012 for this line. For WWTW with a two tier consent we have taken exceeding the lower tier as being a non-compliant sample.

Ardoch, Laighpark (Paisley) and Shieldhall WWTWs marginally increased their compliance.

Compliance at Allers, Alloa, Carbarns, Daldowie, Dunbar, Erskine, Hamilton, Kinneil Kerse, Philipshill and Stirling West WWTWs show a marginal decrease.

E9.8-14 Treatment Works Category

This information is held in the corporate asset inventory. We are reporting 22 large WWTWs in Table E9, though 23 large WWTW are reported in E8.7. The WWTW that is reported in E8.7, but not in Table E9, is the Meadowhead outfall, which takes a trade effluent flow from a pharmaceuticals factory. This is consistent with previous reporting.
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E9.15-21 Works cost

Analysis of functional costs for large sewage treatment works:

	2011/12	2010/11	Variance
	£m	£m	£m
Daldowie	0.713	0.737	+0.024
Dunbar	0.301	0.288	(0.013)
Galashiels	0.056	n/a	(0.056)
Tertiary treatment	**1.070**	**1.025**	**(0.045)**
Allers	0.268	0.188	(0.080)
Alloa	0.289	0.280	(0.009)
Ardoch	0.318	0.353	+0.035
Bo'ness	n/a	0.196	+0.196
Carbarns	0.257	0.327	+0.070
Dalderse	0.298	0.379	+0.081
Dalmarnock	0.939	1.070	+0.131
Dunfermline	0.120	0.143	+0.023
Dunnswood	0.243	0.246	+0.003
Erskine	0.357	0.429	+0.072
Girvan	0.189	n/a	(0.189)
Hamilton	0.368	0.364	(0.004)
Kinneil Kerse	0.369	0.441	+0.072
Kirkcaldy	0.419	0.452	+0.033
Laighpark (Paisley)	0.944	0.987	+0.043
Perth	0.216	0.241	+0.025
Philipshill	0.557	0.425	(0.132)
Shieldhall	1.928	1.688	(0.240)
Stirling	0.233	0.399	+0.166
Troqueer	0.149	0.055	(0.094)
Secondary treatment	**8.461**	**8.663**	**+0.202**
Direct large treatment works	**9.531**	**9.688**	**+0.157**
General and Support	1.361	1.510	+0.149
Total large treatment works	**10.892**	**11.198**	**+0.131**

The number of treatment plants classified as large works has increased by 1 from 2010/11, with Galashiels and Girvan being classified from small to large and Bo'ness from large back to small.

- Bo'ness STW [South, Band 5, Secondary Activated Sludge] has moved from large secondary to small secondary £0.2m;
- Dalmarnock STW [West, band 6, Secondary Activated Sludge] decreased by £0.1m due to lower flows in 2011/12;
- Galashiels STW [South, Band 6, Tertiary B1] has moved from small tertiary to large tertiary £0.1m;
- Girvan STW [West, Band 6, Secondary Activated Sludge] has moved from small secondary to large secondary £0.2m;
- Philipshill STW [South, Band 6, Secondary Activated Sludge] increased £0.1m due to new final effluent pumping;

- Shieldhall STW [West, Band 6, Secondary Activated Sludge] increased £0.2m due to increased E&M costs;
- Stirling STW [West, Band 6, Secondary Activated Sludge] decreased £0.2m due to additional time spent at the plant following capital upgrade in prior year.

Confidence Grades – Confidence grades on Table E9 are consistent with grades in the general E table commentary.

Direct costs are predominantly captured in the core corporate financial system, with labour costing feeds from the core corporate works management system. A high proportion of direct costs are captured by asset, hence the A2 confidence grade. A smaller proportion of costs – mainly general and support costs – remains to be allocated to works by means other than direct capture. Following analysis of these residual general and support costs, Scottish Water feels that it now has a more appropriate allocation basis to asset.

Estimated terminal pumping station costs are graded slightly lower in confidence than treatment costs, as terminal pumps (as defined) sit in networks or are costed as part of the treatment works.

Table E10 Wastewater Explanatory Factors - Sludge Treatment and Disposal

E10.1-2 Sludge Volumes

E10.1 Resident population served

The total resident population served increased by 19,135 to 2,626,583. This change is consistent with the rise in population reported elsewhere in this submission.

We again report the population treated at Scottish Water operated WWTW that have their sludge treated at PPP sludge treatment centres. This accounts for the anomaly in reporting a population against the ‘incineration’ and ‘other’ routes but no Scottish Water sludge volumes being recycled through these routes. Some of this was used to carry out trials of recycling of hydrolysed sludge in England and the rest was used for industrial crop.

The confidence grade remains at C3.

E10.2 Amount of sewage sludge

The reported mass of sewage sludge has increased slightly to 20.0 ttds. As with AR11 all the SW figures reported were taken direct from the Gemini system.

A small overall increase in the volume of enhanced treated sludge was noted, 0.229 ttds. Increased volumes were recorded at Perth, Stornoway and Orkney; with Dunfermline and Kinneil Kerse conversely reporting decreased quantities. Conventional sludge production has increased by 1.546 ttds from the previous year. This reflects increased import volumes at Dalderse and the commissioning of the lime stabilization plant at Troqueer giving a product suitable for agricultural use and subsequent reduction in composted sludge from this site. Dunfermline had 0.0886ttds recycled to land restoration over the reporting period.

A marginal decrease, 0.0129 ttds was recorded in sludge taken to landfill in 2011/12.

No significant changes are reported and the confidence grade therefore remains B4 as prior years.

E10.3-11 Sludge Treatment and Disposal Costs

Sludge Treatment E10.11

	Total
Functional expenditure:	£m
2011/12	12.849
2010/11	12.766
Variance	**(0.083)**

Sludge treatment costs have increased by £0.1m (0.7%) from 2010/11. This is analysed as follows:

- Power costs remained stable at £1.7m with an increase due to carbon tax of £0.2m; offset by reduced consumption and price of £0.2m ;
- £0.5m (9.8%) decrease in hired and contracted costs due to increased sludge transported to PFI works of £0.3m; and a decrease in restructuring costs (PACE project) of £0.1m;
- £0.4m (48.9%) increase in materials and consumables due to more robust identification of sludge chemical costs at shared sewage/sludge sites; and
- £0.1m (5.6%) increase in general and support costs due to increased VR and restructuring costs; an increase in asset management operational activity of £0.2m; offset by decrease in support costs of £0.1m.

Scottish Water incurs costs associated with the transportation of sludge from its own sewage treatment works to PPP sludge treatment centres (£3.0m). These costs have been reported within E3a.20 with the corresponding sludge loads in reported in E3.

The allocation of sludge treatment and disposal costs by disposal route relies on robust sludge movement data linked to financial data. Scottish Water links sludge movement data from the Gemini waste management system to ABM costs to produce E10 cost analysis.

Analysis of sludge treatment costs by disposal route:

	2011/12	**2010/11**	Variance
	£m	£m	£m
Farmland:			
Untreated	0.000	0.000	+0.000
Conventional	4.157	3.498	(0.659)
Advanced	7.178	6.913	(0.265)
Incineration	0.000	0.000	+0.000
Landfill	1.269	1.495	+0.226
Composted	0.204	0.860	+0.656
Land reclamation	0.041	0.000	(0.041)
Other	0.000	0.000	+0.000
Total	**12.849**	**12.766**	**(0.083)**

The change in costs by disposal route has been affected by the following main factors:

- Changed process at Troqueer (use of lime) changing the disposal route from Composted to Farmland Conventional £0.7m;

- Changed process at Galashiels (temporary use of lime while digester is refurbished) changing disposal route from Farmland Conventional (£0.3m) to Farmland Advanced (£0.4m);
- Landfill decrease in costs £0.2m due to repairs at Lerwick in prior year;
- Land Reclamation a small amount was available at Dunfermline <£0.1m during 2011/12.

Confidence Grades – Sludge cost analysis by ultimate disposal route requires analysis of all sludge treatment, tankering and disposal costs by works, linked to intermediate works (where applicable) and ultimate disposal route. Certain costs are clearly captured by works with identified disposal route. However, certain costs are not fully captured directly against sludge. The main areas of difficulty are inter-site sludge tankering and sludge treatment / conditioning at dual function works (sludge / wastewater treatment). Table E10 is completed on the basis of a combination of: ABM analysis, direct cost capture by asset, and Scottish Water sludge model analysis. Confidence grades on Table E10 are lower (B2) than other E Table cost analysis due to these reasons.

G Tables – Investment Monitoring

Tables G1 – 2: General Comments

Tables G1 – G2 present a summary of Scottish Water's investment programmes for Q&SIIIb, Q&SII & 3a (completion programme) and Q&S IV early start. The investment costs and outputs reported in these tables reflect the position as reported to the Commission in the Q4 2011/12 Capital Investment Return (CIR).

Elements reported include the pre 2010 expenditure, the actual expenditure in 2010/11, the report year and forecasts to Post March 2015. We have revised the 2010/11 reported numbers to reflect the application of Supplier rebates. Scottish Water successfully delivered £491million (net £461m) of investment in 2011/12. This comprised £77m of investment in the completion programme, and £414m in the Q&SIIIb programme. Table G1 reports the net investment in the year, the difference being due to the reversal of a SWS1 accrual.

Total forecast investment to March 2015 set out in the tables is £2,650.5m comprising £215.5m for completion programme (Q&SII & Q&SIIIa), £2,400.5 for Q&SIIIb and £34.5m for Q&SIV early start. Net capital investment, excluding grants and contributions, is £2,634.3m. Items such as unpromoted capital maintenance and programme risk and contingencies have been allocated across appropriate lines in G1.

In our March 2012 Delivery Plan refresh we forecast an expected regulatory capital programme spend of £2,497m. This forecast total can be reconciled to the £2,651m in the CIR and reported in G1.44 by the three steps shown below.

Gross Capital Investment (Q4 CIR & AR12)	**2,651**
Step 1 – add in PFI investment	30
Step 2 – deduct 3rd party funded outputs	-33
Capital Investment Allowance (DP March 2012)	**2,648**
Step 3 – *deduct potential savings*	*-151*
Regulatory Capital Programme (DP March 2012)	**2,497**

The phasing of this investment, together with the £12m of investment financed by grants and customer contributions, is shown below:

	Early Start	2010/11	2011/12	2012/13	2013/14	2014/15	Post 2015	Total
Regulatory capital Investment	**48**	**447**	**465**	**504**	**516**	**434**	**83**	**2,497**
Investment from grants & customer contributions		**1**	**8**	**1**	**1**	**1**		**12**
Total regulatory investment	48	448	473	505	517	435	83	2,509

There is still considerable uncertainty about the cost and phasing of the capital investment programme. The range of forecast investment for delivery by March 2015 associated with the current regulatory contract, relative to that set out above, is +£50m to -£150m.

The forecast completion costs of £83m reflect primarily the timescales associated with completing the planned Glasgow UID improvements.

As the above phasing would result in only £435m of investment in 2014/15, and to maintain continuity of investment delivery, we are in discussions with stakeholders and regulators about progressing with further sewerage infrastructure improvements and accelerating Q&S4 investment of around £70m into 2014/15. If this investment acceleration can be agreed, our proposed investment profile in the 2010-15 period would be:

	2010/11	2011/12	2012/13	2013/14	2014/15	Total
Current investment programme - per table 3.1 above	448	473	505	517	435	2,378
Proposed additional / accelerated investment					70	70
Proposed investment 2010-15	**448**	**473**	**505**	**517**	**505**	**2,448**

Over the year, we have progressed both 10 Q&SII projects to signoff, representing 63% of the total outstanding, and 23 Q&SIIIa projects to regulatory signoff representing 50% of the total outstanding at the start of the year.

Investment in 2011/12 delivered a number of Growth and Drinking water quality projects in line with our Delivery Plan forecasts. Capital maintenance investment accounts for 45% of the investment in 2011/12.

The table below reflects the inflation assumptions used within the CIR which are a more cautious estimate of CoPI than is used in the March 2011 Delivery Plan.

Inflation Assumptions

	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Total Expenditure	£617.9	£681.6	£605.2	£439.92	£491.0	£497.0	£506.0	£336.9	£366.4
Inflation Assumptions		2.4%	-3.10%	-2.80%	2.50%	2.50%	2.50%	2.50%	2.50%

Table G1 Summary - Investment

G1.1-1.6 Q&SIIIb Capital Maintenance

Projects containing Capital Maintenance drivers are captured in these lines. In 2011/12 expenditure of £207.7 was made against Q&SIIIb Capital Maintenance.

G1.7–1.11 Q&SIIIb Growth Investment

Projects containing Growth drivers are captured in these lines. In 2011/12 expenditure of £34.5m was made against Q&SIIIb Growth.

G1.12-1.17 Q&SIIIb Enhancement Expenditure

Projects containing Enhancement drivers are captured in these lines. In 2011/12 expenditure of £170.7m was made against Q&SIIIb Enhancements.

G1.18: Q&SIIIb Enhancements – OMG Unallocated Enhancement Expenditure

Projects containing OMG Enhancement drivers are captured in these lines.

G1.19 – G1.21 Q&SII & IIIa Completion Expenditure

Projects from the completion programme are captured in these lines. In 2011/12 a total expenditure of £46.8m was made against this programme with £12.4m being spent on the Q&SII programme and £34.4m on Q&SIIIa. The Completion programme is predicted to outturn at £215.5m with a forecast of £55.1m on Q&SII and £160.4m on Q&SIIIa.

G1.22: Q&SIV Early Start.

Projects containing Q&SIV Early start drivers are captured in these lines. In 2011/12 expenditure of £1.0m was made against Q&SIV early start, with a total forecast spend of £34.5m being predicted during completion of the Programme.

G1.23 – G1.32: Total Additional Operating Expenditure

Additional operating expenditure is calculated through the analysis of the proportion of capital spend allocated to quality, enhanced level of service or growth. The value in the report year and future years is calculated from the acceptance (beneficial use) date resulting in expenditure being split proportionately across two years depending on where the beneficial use date falls. Where there have been changes to the driver allocation, the Opex impact value reported against quality is amended in prior years. Refining the process, we identified that the Opex figures for "Report year pre-2010" and "Report year 2010/-11" had been mis-allocated in the 2010/11 return. The correct figures are now included; these are not however of material significance.

G1.33 – G1.38: Grants and Capital Contributions

The infrastructure charge income is reported as contribution against the Q&SIIIb programme. No future grants or contributions are reported as these are not confirmed.

G1.39 – G1.47: Expenditure Totals

These lines sum the figures provided in G1.1 to G1.38 and are automatically populated.

Table G2 Summary – Outputs
We have only commented where we have delivered outputs to March 2012

G2.1- G2.4 Growth
We note that growth is driven by both quality projects and demand from developers. At present market demand is less than anticipated.

G2.1 Strategic Capacity - Water Treatment

We have delivered a total of 30,131pe to March 2012; 22,090pe being delivered in this report year.

G2.2 Strategic Capacity – Wastewater Treatment

We have delivered a total of 23,025pe to March 2012; 13,529pe being delivered in this report year.

G2.3 Strategic Water Network Capacity

We have delivered a total of 16,730pe to March 2012; 105pe being delivered in this report year associated with the income received from infrastructure charges.

G2.5 – G2.21 Q&SIIIb Enhancements – Drinking Water Quality

G2.5 Number of Zones with reduced lead levels to meet the standard

We have delivered 28 outputs to March 2012; 21 being delivered in this report year, outperforming the Delivery Plan profile of 13.

G2.7 Length of mains rehabilitated to improve drinking water quality

We have delivered 100km to March 2012; 100km being delivered in this report year, outperforming the Delivery Plan profile of 32km

G2.8 Number of DMA's subject to water quality investigations

We have delivered 126 outputs to March 2012; 65 being delivered in this report year, behind the Delivery Plan profile of 143. A number of outputs in this programme have been delayed due to the increase in customer contacts as a result of this year's sampling programme A change in procedures has been implemented to minimise customer impact.

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G2.9 Number of tanker fill points installed

We have delivered 14 outputs to March 2012; all 14 have been delivered in this report year, outperforming the Delivery Plan profile of 13; this programme is now complete.

G2.10 Number of sites with increased physical security

We have delivered 119 outputs to March 2012; all 119 have been delivered in this report year, outperforming the Delivery Plan profile of 22.

G2.11 Type A Raw Water Supplies provide with treatment

We have delivered 1 output to March 2012; 1 being delivered in this report year, outperforming the Delivery Plan profile of 0.

G2.12 Number of WwTW with Backflow prevention devices installed.

We have delivered 177 outputs to March 2012; 173 being delivered in this report year, outperforming the Delivery Plan profile of 52.

.G2.13 Number of WTW receiving improved disinfection control

We have delivered 12 outputs to March 2012; all 12 have been delivered in this report year, outperforming the Delivery Plan profile of 3.

G2.14 Number of zones covered by Water Safety plans

We have delivered 196 outputs to March 2012; 87 being delivered in this report year, outperforming the Delivery Plan profile of 161; this programme is now complete.

G2.21 Type B (Customer Requested) Raw Water supplies provided with treatment

We have delivered 1 output to March 2012; 1 being delivered in this report year,

G2.22 – G2.35 Q&SIIIb Enhancements – Environment

G2.22 Number of UIDs improved to meet new standard (exclude 7 stage)

We have delivered 5 outputs to March 2012; 2 being delivered in this report year, behind the Delivery Plan profile of 22. The Delivery Plan profile has been revised in the March 2012 refresh and this will be reflected in future reports.

G2.23 Number of UIDs improved to meet new standard (under 7 stage)

We have delivered 33 outputs to March 2012; all 33 have been delivered in this report year, outperforming the Delivery Plan profile of 0.

G2.24 Number of legislative requirements met through improved WwTW discharges

We have delivered 27 outputs to March 2012; 26 being delivered in this report year, outperforming the Delivery Plan profile of 21.

G2.26 Number of WwTW discharges improved to meet existing licence requirements

We have delivered 10 outputs to March 2012; all 10 have been delivered in this report year, outperforming the Delivery Plan profile of 4.

G2.27 Number of WwPS improved to meet existing licence conditions

We have delivered 5 outputs to March 2012; all 5 have been delivered in this report year, outperforming the Delivery Plan profile of 1.

G2.29 Number of dual manhole systems improved

We have delivered 2 outputs to March 2012; all 2 have been delivered in this report year, outperforming the Delivery Plan profile of 0.

G2.30 Number of sludge treatment facilities improved to comply with safe sludge matrix

We have delivered 1 output to March 2012; this output has been delivered in this report year, outperforming the Delivery Plan profile of 0.

G2.31 Number of WwTW brought into compliance with non-sanitary requirements

We have delivered 6 outputs to March 2012; all 6 have been delivered in this report year, outperforming the Delivery Plan profile of 0.

G2.32 Number of wastewater network assets brought into compliance with non-sanitary requirements

We have delivered 15 outputs to March 2012; all 15 have been delivered in this report year, outperforming the Delivery Plan profile of 4.

G2.33 Number of environmental studies undertaken

We have delivered 45 outputs to March 2012; 31 being delivered in this report year, outperforming the Delivery Plan profile of 26.

G2.34 Number of assets covered by flooding risk assessments

We have delivered 216 outputs to March 2012; all 216 have been delivered in this report year, outperforming the Delivery Plan profile of 212.

G2.36 – G2.43 Q&SIIIb Enhancements – Customer Service

G2.36 Number of WwTW where malodour is reduced

We have delivered 3 outputs to March 2012; all 3 have been delivered in this report year, outperforming the Delivery Plan profile of 0.

G2.38 Number of properties removed from low pressure register

We have removed 1,475 properties from the low pressure register to March 2012; 1,017 being removed in this report year, outperforming the Delivery Plan profile of 993.

G2.39 Number of properties removed from the low pressure register (Exclusions)

We have removed 152 properties from the low pressure register to March 2012; 102 being removed in this report year, outperforming the Delivery Plan profile of 86.

G2.40 Works associated with the Commonwealth Games

We have delivered 31 outputs to March 2012; all of these being delivered in the previous report year, outperforming the Delivery Plan profile of 0.

G2.41 Number of assets protected from flood risk

We have delivered 7 outputs to March 2012; all 7 have been delivered in this report year, outperforming the Delivery Plan profile of 0.

G2.44 Number of climate change studies

We have delivered 5 outputs to March 2012; all 5 have been delivered in this report year, meeting the Delivery Plan profile of 5.

G2.54 – G2.55 Q&SIIIa & Q&SII Delivery Projects

At the end of 2011/12, we have reduced the overall number of projects remaining to be signed off to 29 which is ahead of our delivery plan target of 38. This represents a 53% reduction in the number of completion projects outstanding from the start of the year.

G2.54 Q&SII projects remaining

A starting position of 62 projects is reported in March 2010. This reflects the original list of 68 completion projects, less 5 which were delivered pre 2010 and less Newhall which was removed through the OMG working group pre 2010. The number of projects still to be completed at the end of 2011/12 was 6.

G2.55 Q&SIIIa projects remaining

A starting position of 251 projects is reported in March 2010. This reflects the original list of 265 completion projects, less 14 which were delivered pre 2010. The number of projects still to be completed at the end of 2011/12 was 23.

We are showing a forecast of 8 outstanding projects (1 Q&S2 and 7 Q&S3a) at the end of 2012/13 however, a more prudent management view of 11 has been taken in the Q4 CIR given the risks associated with delivery of these projects

Table G3 Monitoring Serviceability

G3.1 – 3.4 Drinking Water Quality Indicators (Annual Measure)

G3.1 – 3.2 % of compliant zones for Iron & Manganese

The exclusion of iron from drinking water decreased by 2.9% from 92.88% in 2011 to 90.16% compliance of water supply zones in this reporting year.

We improved the exclusion of manganese from drinking water by 0.49% from 94.43% in 2011 to 94.92% compliance of water supply zones in 2011/12.

G3.3 Number of microbiological failures at water treatment works

The number of microbiological failures at water treatment works has increased by 5 from 2011 to 49.

G3.4 Lead communication pipe survey

There is no specific serviceability objective for “Lead communication pipe survey” within our Delivery Plan (Table 3.1, page 8). This output is reported in line G2.17.

G3.5 – 3.9 Environment Serviceability Indicators

G3.5 Number of Failing Wastewater treatment works

The number of Failing Wastewater treatment works is 10 for 2011/12 as confirmed with SEPA.

G3.6 Number of sludge treatment facilities improved to comply with safe sludge matrix

This output is reported in line G2.30.

G3.7 The maximum number of UID’s

During the report year, we have continued to complete the delivery of both the Q&SII uCSO completion outputs and the Q&SIII UID outputs. At March 2012 there were 818 UIDs.

G3.8 Number of Pollution Incidents

Environmental Pollution Incidents occur where there is a failure at an asset that impacts on the environment, as agreed with SEPA. These can fall into either a category 1, 2 or 3 for both water and wastewater incidents. We recorded a total of 500 incidents in 2011/12. There was 1 water pollution category 1 incident, 18 wastewater pollution category 1 & 2 incidents and 481 wastewater pollution category 3 incidents.

In addition to this, there were a further 9 water category 3 incidents and 9 wastewater/water compliance incidents. The total of 518, which includes all pollution incidents, has also been agreed with SEPA.

SW and SEPA continue to operate a shared spreadsheet with incidents being agreed on a monthly basis.

G3.9 Water Efficiency Plan

There is no target set out in the Delivery Plan 2010-15 therefore we have not reported any figures.

The Water Efficiency Plan was approved by ministers in October 2011. Our approach to water efficiency is framed around three key areas: Engaging with our customers, improving our assets, working with our stakeholders and policy makers. Work on the work streams continued while we awaited approval for the plan and good progress is being made.

G3.10 – 21 Customer Service Serviceability Indicators

G3.10 Properties on the Low Pressure Register

The overall number of properties on the Low Pressure Register is reported as 902. This figure allows for exclusions of properties within 10.5 metres head of Service Reservoirs. This is reported against a required Service Ability Standard of 1,000.

G3.11 Properties with Unplanned Interruptions to supply > 12 hours

The overall figure for 2011/12 was 3,672 properties which is a decrease of 190 over 2010/11. In this reporting year three large incidents caused over 5,000 properties to lose supply for greater than six hours.

In May 2011, 2,534 properties were affected by an incident in Broxburn with supply being restored in 11½ hours.

In July 2011, 1,428 properties were affected by a burst on a trunk main in Cumbernauld with supply being restored in just under 8 hours.

In August 2011, 1,296 properties were affected by a burst on a trunk main in Wishaw with supply being restored in just over 9½ hours.

G3.12 Number of Bursts per 1,000km of mains

There were 183 mains bursts per 1,000km during 2011/12. This was a decrease of 24 from 2010/11.

G3.13 – G3.14 Customer Service Serviceability Indicators - Sewer Flooding

The 2011/12 guidance requests that we document our criteria for assessment during the report period. We note that our methodology remains unchanged from previous years, as outlined in our 2009/10 commentary document (page 33).

G3.13 Properties at Risk of Internal Flooding

The number of properties at risk of internal flooding at March 2012 was 337 in line with our delivery plan target.

G3.14 Properties internally flooded due to other causes

The figures reported here relate to flooding caused by blockages or failure of main and lateral sewers. The number of properties internally flooded in 2011/12 was 693, a decrease of 127 on the previous year.

G3.15 The Overall Satisfaction level (from the customer service questionnaire)

The overall Satisfaction Level at March 2012 was 83% in line with our Delivery Plan target and an increase of 3% on the previous year

G3.16 The maximum number of 'second tier' complaints referred to Waterwatch

The overall number of second tier complaints referred by Waterwatch and Scottish Public Services Ombudsman (SPSO) in 2011/12 was 44 a reduction of 6 on the previous year. The SPSO came into being on the 15th August 2011 when Waterwatch was disbanded.

G3.17 The number of telephone contacts relating to drinking water quality

Total number of telephone contacts which related to drinking water quality in 2011/12 was 25,897, an increase of 5,387 on 2010/11. Two incidents occurred at Water treatment works which were the principal contributors to the increase in contacts.

G3.18 Metering Trial

There is no target set out in the Delivery Plan 2010-15 therefore we have not reported any figures.

The Water Efficiency Trial was approved by ministers in October 2011. A scoping document has now been produced for this and we are in the process of selecting a project manager. Once the PM is in place we will be able to confirm the timeline for the Trial.

G3.19 Creation of a register of all properties affected by external sewer flooding

There is no target set out in the Delivery Plan 2010-15 therefore we have not reported any figures.

G3.20 The Overall Performance Assessment (OPA) Score

The 2011/12 OPA score was 355. This is the second year that 17 indicators have been incorporated and we have increased our score by 25 points on 2010/11.

G3.21 The average annual level of leakage

The 2011/12 Maximum Likelihood Estimation (MLE) leakage is 629.24 Ml/d. This is a reduction of 69 Ml/d from the 2010/11 MLE leakage figure of 699.1 Ml/d.

Table G4 OMD Inputs including Q&SII and Q&SIII a project Sign-off

General Comments

G4.1 - G4.37 show the enhancements under the Q&SIIIb programme by OMD grouping. The number of outputs recorded is by Milestones 1 to 5 by quarter. The data reflects the cumulative actual and forecast position by year over the 2010-15 Regulatory period. The data reported reflects the position recorded in the Quarter 4 2011/12 CIR.

Lines G4.38 - G4.39 report the actual and forecast OMD expenditure by quarter by year for the 2010-15 regulatory period.

Lines G4.40 – G4.44 report the actual and forecast Q&SII and Q&Sllla projects signed off at MS5 by quarter and year.

Where no line comment is given we are forecasting to achieve all outputs.

G4.1 – G4.13 Q&SIIIb Enhancements – Drinking Water Quality- OMD outputs

G4.2 Number of treatment works improved to meet drinking water quality standards

There have been 2 additions to the Technical Expression- Forehill WWTW and Loch Eck WTW, increasing our forecast to 8 outputs.

G4.3 Km of mains rehabilitated

Forecast of 4,135kms reflects our belief that a reduced length of mains is required to meet the zonal compliance requirements. This is less than delivery plan profile of 4,532.

G4.14 – G4.25 Q&SIIIb Enhancements – Environment - OMD outputs

G4.14 Number of UID Improved (excluding 7 stage)

Approved additions and removals to the Technical Expression have reduced the total number of outputs in this programme by 2 to 24.

G4.24 Number of environmental studies undertaken

Two studies, Waternish and Sanday have been removed from the programme and 4 have been added taking the total forecast to 112 outputs.

G4.26– G4.31 Q&SIIIb Enhancements – Customer Service- OMD outputs

G4.29 Works associated with the Commonwealth Games
The 68 outputs reported do not include the outputs associated with Elmvale Row; these are being reviewed as part of the Glasgow Strategic Drainage Plan, (GSDP) and may be removed from the programme.

G4.34 – G4.35 Q&SIIIb Enhancements – Growth- OMD outputs

Growth is no longer included in the OMD calculation.

G4.36 – G4.37 Q&SIIIb Enhancements –7 Stage Process outputs

G4.36 Number of UID improved (under 7 stage)

The forecast includes 6 outputs relating to Airdrie & Coatbridge which are not part of the 7 stage process. There have been 11 additions to the Technical Expression, which have increased the total number of UIDs to be improved to 214.

G4.38 – G4.39Total OMD related enhancement expenditure

Actual expenditure is reported for years 2010/11 and 2011/12 with forecasts for future years.

G4.41 Q&SII Projects signed off (cumulative)

The cumulative figure reported in G4.41 is 65 projects in 2015/16. This does not include projects that have been removed from the completion programme through agreement with the OMG working group. A total of 3 projects have been removed. This would then be consistent with the G2.54 commentary, which shows a starting list of 68 projects.

G4.43 Q&SIIIa Projects signed off (cumulative)

The cumulative figure reported in G4.43 is 249 in 2015/16. This does not include projects that have been removed from the completion programme through agreement with the OMG working group. A total of 16 projects have been removed. This would then be consistent with the G2.55 commentary, which shows a starting list of 265 projects.