



**Scottish  
Water**  
Always serving Scotland

**SCOTTISH WATER  
WIC ANNUAL RETURN  
COMMENTARIES  
June 2013**

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# A Tables Base Information

## Table A1 Connected and Billed Properties

### General Comments

Property numbers are for the report year as at 30 September 2012.

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 reflects the fact that data corrections are anticipated arising from the current 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 2012 2nd Reconciliation (R2), the latest available at the end of March 2013, was used to populate the A Tables.

The A Tables are populated based on reports from Scottish Water's Reconciliation datamart which contains the disaggregated settlement reports issued by the CMA.

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 points, 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 2013, there were 1,762 water and 1,635 sewerage 'New' and 'Partial' Supply Points registered at the CMA. Both numbers have substantially reduced since last year when issues with the gap site and new connection processes were preventing a significant proportion of the total being progressed into settlement. Changes were made in the CMA systems in June 2012 to facilitate processing new Supply Points into settlement, enabling clearance of the majority of such cases. The current balance of 'New' and 'Partial' Supply Points consists of an ongoing run-rate of new connections and gap sites; a residual group of new connections and gap sites affected by residual systems processing issues, an enduring solution for which is being planned for the September 2013 release in the central systems;

and 2,872 remaining from the gap sites phase 2 project awaiting processing into settlement by the relevant LP. Some of the latter group are reliant on policy guidance regarding the configuration of multi-tenancy sites.

A further group of around 6,525 Supply Points have been rejected from the new connection or gap site processes by the LP and are neither in settlement nor in 'New' or 'Partial' Status. These rejections include cases where Scottish Water agrees that a Supply Point had been created in error as well as premises which are not currently registered at the CMA and which Scottish Water considers have been rejected erroneously. The latter group, which still require to be processed into settlement, will be reviewed in the coming months and resubmitted to Licensed Providers following discussion and agreement of the most appropriate mechanism.

The 'New' and 'Partial' Supply Points remain in the Central Systems but are not in settlement and therefore not reflected in the A Tables.

In 2012 the Commission initiated a Data Improvement Project in the market involving all market participants, in view of 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 has considered the accuracy, completeness and reliability of all data in the market. Following a proof of concept including desk analysis and field surveys to assess the accuracy of a sample of existing market data, a Data Alignment exercise is now underway to resolve any discrepancies between data held at the CMA and data used to calculate retail bills by LPs. The project has three 'workstreams', a one-off data reconciliation to align customer billing data with CMA data; a review of meter asset data over the course of a meter reading cycle to identify and resolve any anomalies; and a group of supply points which are candidates for deregistration from the market. Following application of any necessary data amendments at the CMA in a number of phases during 2013, the data of LPs will be audited by the Commission and LPs will be required to warrant annually that water and waste water services for each Supply Point registered to them are correctly recorded at the CMA.

None of the data amendments arising from the Data Alignment project had been applied at the time that the September 2012 R2 settlement run used to populate the A Tables was published. Changes to Property Drainage data to reflect retail billing were implemented in late March. Candidate discrepancies between services information billed by LPs and held at the CMA are in the process of being reviewed; and the removal of Supply Points incorrectly registered (for example due to a duplicate Supply Point or because a premises has changed use to a domestic dwelling) are due to be completed by August 2013.

The data changes arising from the project, whilst not yet known, could result in significant movements in the data reported in the A Tables in future years.

In addition to the activities being undertaken above, a further 'gap sites' project is anticipated, although the potential impact is unclear. The CMA has been undertaking a comparison between data registered in the market and premises recorded at the Scottish Assessors. The initial pilot phase comprised a review of postcodes in Clackmannanshire and that is being extended to a wider area. The end-to-end process for those being reviewed is still being worked through but experience to date of undertaking gap site projects is that there are high levels of attrition in candidate sites at the different stages of the process.

Scottish Water has continued to survey the occupancy status of properties. In April 2012 the Commission introduced the Vacancy Admin Charging Scheme which enabled Scottish Water to change the status of a Supply Point from vacant to occupied where it had evidence of occupancy. The registered LP has the facility to challenge such changes and refer its own evidence to an independent Expert for review where it disagrees with the proposed change. Changes have also been made to the Commission's Vacant Site Incentive Scheme to enable

LPs to claim incentive payments for identifying Supply Points registered to another LP which are wrongly flagged as vacant and having them corrected at the CMA.

The effect of these changes is to provide Scottish Water with a mechanism to correct erroneously recorded occupancy status and to incentivise other LPs to identify Supply Points wrongly flagged as vacant. The result of these changes has been an increase in properties changed to occupied in the last year but this has not kept pace with continuing significant increases in volumes of Supply Points turned to vacant. Whilst the position has improved since the data extract for the annual return, movement of Supply Points to vacant tends to be seasonal, peaking around financial year-end and early summer so it is too early to draw conclusions from recent months. Scottish Water continues to have concerns about the proportion of Supply Points flagged as vacant which are truly unoccupied.

Occupancy status changes in 12 months prior to Annual Return data cut	Occupied to Vacant	Vacant to Occupied	Net change in occupied SPIDs
2010/11	13,477	12,574	-903
2011/12	19,029	14,974	-4,055
2012/13	33,191	25,158	-8,033
Post 2012/13 Annual Return data cut	4,541	8,354	3,813

#### Forecast data for 2013/14

Forecast non-household data for the 2013/14 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 1.0% has been applied to all property numbers. It should be noted that the 2013/14 forecast will differ from the data in the Final Determination as the starting position in 2012/13 has been revised to reflect actual data.

#### Non-household connected properties

The number of connected non-household properties taking water services has increased by 6,459 to 158,919. Non-household properties taking sewerage services have similarly increased by 6,702 to 132,780.

Line ref.	Non-household connected properties	2011/12 Annual Return	2012/13 Annual Return	Variance
A1.8	Unmeasured non-household connected properties – water	32,488	36,801	4,313
A1.9	Measured non-household connected properties - water	119,972	122,118	2,146
A1.8 + A1.9	Total connected non-household connected properties - water	152,460	158,919	6,459
A1.19	Unmeasured non-household connected properties – sewerage	29,978	34,588	4,610
A1.20	Measured non-household connected properties - sewerage	96,100	98,192	2,092
A1.19 + A1.20	Total connected non-household connected properties – sewerage services	126,078	132,780	6,702

These increases are primarily the result of the significant number of gap sites and new connections processed from a state of 'New' and 'Partial' into settlement following the CMA system changes in March 2012. The largest increases have been observed in unmeasured properties and these relate to properties processed into settlement via gap site project work. Such properties were typically created as unmeasured Supply Points in the first instance will subsequent follow-up activity to install meters where feasible.



Other initiatives affecting the totals include new connections to the network, de-registration of properties found to be incorrectly in the market (for example duplicates, domestic and demolished properties) and permanent disconnections. Certain types of premises may change their tax status from domestic assessment to business and back, for example holiday chalets or houses for short term lettings, leading to an amount of churn in this sector.

### 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 increased by 3,873 in the report year.

As set out in previous sections, the 12 months prior to the September 2012 R2 settlement report used to populate this year's annual return saw a significant net movement in Supply Points from occupied to vacant. The increase has been heavily weighted towards unmeasured properties and much of this increase relates to gap sites recently processed into settlement via project work which, as set out above, were typically unmeasured in the first instance. Whilst some of these properties had been identified to be vacant by the project surveys, many had been confirmed to be occupied by these site visits.

The number of Supply Points found to be wrongly recorded as vacant by either Scottish Water via the Vacant Charging Administration Scheme or a non-registered LP via the Vacant Site Incentive Scheme has grown significantly in the last year and 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.

There has been a corresponding increase of 3,537 in the number of void properties having sewerage services over the period for the same reasons.

Void properties	2011/12 Annual Return	2012/13 Annual Return	Variance
Unmeasured void properties – water	12,272	16,071	3,799
Measured void properties – water	13,731	13,805	74
<b>Total void properties – water</b>	<b>26,003</b>	<b>29,876</b>	<b>3,873</b>
Unmeasured void properties – sewerage	11,212	14,991	3,779
Measured void properties - sewerage	12,399	12,157	-242
<b>Total void properties - sewerage</b>	<b>23,611</b>	<b>27,148</b>	<b>3,537</b>

### 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 2,586 for water and 3,165 for sewerage. As set out above, this is the net effect of Supply Points processed into settlement from 'New' and 'Partial' offset by changes in occupancy status, de-registration of properties found to be incorrectly in the market (for example duplicates, domestic and demolished properties) and disconnection activity.

Line ref.	Water services - billed	2011/12 Annual Return	2012/13 Annual Return	Variance
A1.3 + A1.4	Total billed Non-household properties – water	126,457	129,043	2,586
A1.14 + A1.15	Total billed Non-household properties - sewerage	102,467	105,632	3,165

## Household properties (connected and billed)

The data for these lines has been sourced directly from the WIC4 reports of September 2012 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 12,126. The growth in connected properties of 13,432 differs to the growth in billed properties as we are now billing properties which were, in the past, connected but not billed.

Line ref.		2011/12 Annual Return	2012/13 Annual Return	Variance
A1.1	Unmeasured household billed properties - potable water (including exempt)	2,382,151	2,394,277	12,126
	Number of void properties	46,387	47,693	1,306
A1.6	Unmeasured household connected properties	2,428,538	2,441,970	13,432

## 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 12,126 as shown below:

Line ref.	Annual return (households)	Report Yr -1	Report Yr	Growth	Report Yr +1	Growth
	Total number of billed properties	2,319,031	2,329,680	10,649	2,341,947	12,267
	Number of exempt properties	63,120	64,597	1,477	64,597	0
A1.1	Total billed unmeasured households	2,382,151	2,394,277	12,126	2,406,543	12,267

From the above table, the total number of billed properties has increased by 12,126 which is slightly lower than forecasted in AR12. There has been an increase in the number of exempt properties by 1,477 and an increase in the number of void properties by 1,306 which partially accounts for this lower than expected increase in billed properties. The number of exempt properties is expected to remain the same going forward.

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 22 customers. 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 2,586 to 129,043 compared with the 2011/12 Annual Return.

This movement was due to the combined effect of gap sites and new connections processed into settlement, changes in occupancy status at Supply Points, physical disconnections and de-registrations as set out above.

Line ref.	Water services - (connected and billed)	2011/12 Annual Return	2012/13 Annual Return	Variance
A1.3	Unmeasured non-household billed properties – potable water (including exempt)	20,216	20,730	514
A1.4	Measured non-household billed properties - potable water	106,241	108,313	2,072
	<b>Total billed Non-household properties</b>	<b>126,457</b>	<b>129,043</b>	<b>2,586</b>

## **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 47,693.

### **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 increased by 6,459 to 158,919 compared with the 2011/12 Annual Return. As set out earlier, this is primarily the result of gap sites and new connections processed into settlement from a state of 'New' or 'Partial' following system changes at the CMA in March 2012.

Line ref.	Connected Properties	2011/12 Annual Return	2012/13 Annual Return	Variance
A1.8	Unmeasured non-household connected properties	32,488	36,801	4,313
A1.9	Measured non-household connected properties	119,972	122,118	2,146
	<b>Total connected Non-household properties</b>	<b>152,460</b>	<b>158,919</b>	<b>6,459</b>

### **A1.11 Number of properties connected during the report year**

The number of properties connected in the report year of 14,823, and is in line with the forecast figure. The number of properties connected in this report year shows a small reduction to the previous year of 354. The forecast for 2012/13 shows a slight reduction as we have seen the volume of connections tail off towards the end of this report year.

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 10,787 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 10 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 3,165 to 105,632 compared with the 2011/12 Annual Return. This movement was due to the combined effect of gap sites and new connections processed into settlement, changes in occupancy status at Supply Points physical disconnections and de-registrations as set out above.

<b>Line ref.</b>	<b>Billed Properties</b>	<b>2011/12 Annual Return</b>	<b>2012/13 Annual Return</b>	<b>Variance</b>
A1.14	Unmeasured non-household billed properties – sewerage	18,766	19,597	831
A1.15	Measured non-household billed properties – sewerage	83,701	86,035	2,334
	<b>Total billed Non-household properties</b>	<b>102,467</b>	<b>105,632</b>	<b>3,165</b>

## **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 46,011. 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 increased by 6,702 to 132,780 compared with the 2011/12 Annual Return. As set out earlier, this is the primarily the result of gap sites and new connections processed into settlement from a state of 'New' or 'Partial' following system changes at the CMA in March 2012.

Line ref.	Connected Properties	2011/12 Annual Return	2012/13 Annual Return	Variance
A1.19	Unmeasured non-household connected properties	29,978	34,588	4,610
A1.20	Measured non-household connected properties	96,100	98,192	2,092
	<b>Total connected Non-household properties</b>	<b>126,078</b>	<b>132,780</b>	<b>6,702</b>

### **A1.22 Number of properties connected during the report year**

New properties connected have remained at a similar level at 13,786, a slight reduction of 27, 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 zero unmeasured billed properties not billed for property drainage.

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

There has been an increase in properties not billed for Property Drainage since 2011/12. This is the result of the removal of Property Drainage charges at some properties, offset by changes to occupancy status. A substantial increase in requests to verify property drainage services has been observed in the last year and some of the movement shown below will have arisen from such requests where a property is found not to drain to the public sewer.

Line ref.	Properties not billed for Property Drainage	2011/12 Annual Return	2012/13 Annual Return	Variance
A1.25	Unmeasured non-household billed properties not billed for property drainage	574	701	127
A1.26	Measured non-household billed properties not billed for property drainage	970	1318	348
	<b>Total billed Non-household properties</b>	<b>1,544</b>	<b>2,019</b>	<b>475</b>

#### **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 increased by 1,176 to 10,937 since 2011/12. This movement was due to the net effect of gap site and new connection Supply Points processed into settlement from a state of 'New' or 'Partial' 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 drop in billed customers from 447 to 429.

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

The recorded number of connected non-household properties connected for surface drainage has increased by 8,497 to 144,843 compared with the 2010/11 Annual Return. As set out earlier, this is primarily the result of gap sites and new connections processed into settlement from a state of 'New' or 'Partial' following system changes at the CMA in March 2012.

<b>Line ref.</b>	<b>Properties connected for Surface Drainage</b>	<b>2011/12 Annual Return</b>	<b>2012/13 Annual Return</b>	<b>Variance</b>
A1.32	Unmeasured non-household connected properties	43,465	50,390	6,925
A1.33	Measured non-household connected properties	92,881	94,453	1,572
	<b>Total connected Non-household properties</b>	<b>136,346</b>	<b>144,843</b>	<b>8,497</b>

### **A1.35 Number of properties connected during the report year**

New properties connected have remained at a similar level at 13,786, a slight reduction of 27, 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 to 1,361 from the 1,425 reported in AR12. In part this is due to the inappropriate discontinuation of 23 Supply Point Identifiers (SPIDs) to which active discharge points (DPIDs) are attached. The number of discontinued SPIDs has decreased from 28 last year. The actual number of DPIDs which should be billed is 1,384. 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 1,329. 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 1,352.

The confidence grade for the report period and forecast is A3 due to this number coming from the CMA and is affected by the discontinued SPIDs issue.

#### **A1.37 – Connected Properties**

The number of billed and connected properties has increased from 2,756 to 2,835. 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 2,846.

Note, these figures are not affected by the inappropriate 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 at A2 and A3 respectively.

#### **A1.38 - Trade Effluent load receiving secondary treatment**

The total BOD load receiving secondary treatment reported has decreased from 20,882 to 18,648T/yr. Due to the issue with discontinued SPIDs, the actual BOD load discharged is 18,682T/yr.

The forecast figure is down to 18,624T (18,658T 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**

The reported total COD load receiving secondary treatment has decreased from 43,581 to 39,457T/yr. Again, this number is depressed due to the SPIDs issue, and the true figure is 39,546T/yr.

The forecast is 39,422T/yr (39,511T for all DPIDs).

The confidence grade remains at B2 and B4 for the current and forecast years, as the 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 20,056 compared against the 2012 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 was used to identify properties which offer accommodation to visitors and to which was applied the average bed space supplied by Visit Scotland. In this way, a derived number for summer visitors of 130,374 was reached. The reduction in population compared with Report Year -1 is a result of a reduced number of properties identified in Yell.com offering accommodation to visitors

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 19,689 for water, reflecting an increase in the total population and a proportion of households with 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 54, reflecting the decrease by 22 in the number of measured household properties reported in line A1.2.

The confidence grade remains the same at A2

### **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 1,895.4 MI/d in AR12 to 1,840.0 MI/d in AR13, principally due to reduced total leakage and reduction in water delivered to both household and non-household properties.

DI is being reported with a B2 confidence grade maintained from AR12. The availability of the measured flow data is reported at 98% compared with 99.2% reported at AR12.

### **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 MI/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 826.4MI/d to 810.2 MI/d. This has resulted from a reduction in Per Capita Consumption (PCC) of *circa* 1.2 l/head/day (line A2.27), and from 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.

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

The measured household volume of water delivered has decreased by 0.05MI/d compared to the previous year, inline with a reduction in the number of measured households. The percentage of meter under-registration has remained at 4.1%, 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 2011/12 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 for both consumption and revenue calculations.

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 2012 inclusive, the R3 report has been used; for August 2012 to January 2013 the R2 report has been used; and for February and March 2013, the R1 report have been used.

## **A2.13 Unmeasured Non-Household Consumption**

The reported unmeasured non-household volume of water delivered has increased from 20.3 MI/d to 20.8 MI/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.

Whilst the number of reported unmeasured properties in lines A1.3 and A1.8 which are used to populate the property counts below have increased by 13% (4,300 properties) compared with AR12, this increase has mainly been due to vacant properties increasing (discussed in detail under the commentary for table A1). This drop is offset by reduced rates of both internal plumbing losses and supply pipe leakage and also an increase in volume associated with occupied unmeasured properties, thus leaving the unmeasured volume largely unchanged from AR12.

	AR09	AR10	AR11	AR12	AR13
Occupied and exempt properties	53,920	46,957	47,451	20,216	20,730
Consumption (MI/d)	31.00	14.42	14.80	19.13	19.70
Underground supply pipe leakage l/prop/d	48.43	34.39	29.67	29.71	24.57
Underground supply pipe leakage (MI/d)	2.61	1.61	1.41	0.60	0.51
<b>Water delivered (MI/d)</b>	<b>33.61</b>	<b>16.03</b>	<b>16.21</b>	<b>19.73</b>	<b>20.2</b>
Void properties (vacant)	25,925	27,239	18,282	12,272	16,071
Internal plumbing losses (voids) l/prop/d	11.93	11.40	11.05	10.68	10.18
Underground supply pipe leakage (voids) l/prop/d	51.83	39.72	34.94	34.23	28.31
Internal plumbing losses (voids) (MI/d)	0.31	0.31	0.20	0.13	0.16
Underground supply pipe leakage (voids) (MI/d)	1.34	1.08	0.64	0.42	0.45
<b>Water delivered to void (vacant) properties (MI/d)</b>	<b>1.65</b>	<b>1.39</b>	<b>0.84</b>	<b>0.55</b>	<b>0.62</b>
<b>Total line A2.13 unmeasured non-household volume (MI/d)</b>	<b>35.26</b>	<b>17.42</b>	<b>17.05</b>	<b>20.28</b>	<b>20.83</b>

#### 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 from 389.94 MI/d to 380.82MI/d in the current reporting year; the total water delivered for AR13 being 398.94 MI/d compared with 408.53 MI/d in AR12.

#### 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 decreased from 55.8 MI/d in 2011/12 to 54.4MI/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:

- Decrease in fire service use (from 13.5 MI/d to 9.9 MI/d); the methodology used has changed from previous years based on improved understanding of water used for non-firefighting and non-domestic purposes (e.g. training and vehicle washing). Whilst the fire services do not pay for this water, it is included in the CMA measured non-household data and billing adjustments are not made in sufficient time to have removed consumption from 2012/13 from the measured non-household consumption (reported in line A2.14). Performing a like-for-like comparison with AR12, the change would be a reduction of 0.8MI/d, linked to a reduction in the number and scale of fires attended.
- Increase in licensed standpipe use (from 15.7 MI/d to 18.0 MI/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.
- Slight increase in WWTW from 12.2MI/d to 12.4 MI/d; there has been no change to the methodology used.
- Slight increase in Scottish Water Offices and Depots use of 0.002 MI/d; the same methodology has been used as last year.
- There has been a small decrease in Scottish Water jetting volumes from 1.24 MI/d to 1.19 MI/d this is due to a decrease in the number of events that required having chokes cleared by jetting.
- A very slight decrease in unbilled field trough usage (from 11.5 MI/d to 11.3 MI/d); the number of fixed charge field troughs has reduced from 11,273 in AR12 to 11,021 in AR13. This has resulted in a reduction in the overall volume of water used by unbilled field troughs.
- No movement in water used for temporary building connections; the same method has been used as last year.
- A new section to capture unbilled water use by non-household users has been added and the volume recorded for 2012/13 is 0.04MI/d

## **A2.16 Water taken unbilled – illegally**

The volume of water reported as water taken illegally unbilled (WTIU) has remained steady at 1.4 MI/d.

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 0.7MI/d
- Hydrant misuse - the volume has remained unchanged at 0.4MI/d.
- Illegal standpipes - the volume has decreased from 0.3 MI/d to 0.2 MI/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 increased from 4.3 MI/d in 2011/12 to 5.4 MI/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 from 0.4 MI/d to 0.8 MI/d, due to larger tanks being cleaned in the report year, in comparison with AR12. 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 remained steady at 0.1 MI/d; the same method has been used as last year.
- Proactive Flushing & Swabbing - the volume of water has increased from 2.2 MI/d to 3.6 MI/d in this reporting year; the methodology is the same as the previous year. The increase is due to more events requiring proactive flushing being reported from Customer Service Delivery.
- Burst Repairs / Other Network Interruptions – the methodology applied is the same as the previous year; the volume has reduced slightly to 0.4 MI/d, due to fewer network interventions being required.
- Reactive Water Quality Incidents – the volume has reduced from 1.0 MI/d to 0.4 MI/d due to a successful initiative to reduce the number of water quality complaints from members of the public. The methodology applied is the same as the previous year.
- Planned Water Quality Sampling – the volume reported remains constant at 0.1 MI/d; there has been no change in methodology.

## **A2.18 Net Consumption (including supply pipe losses)**

Net consumption has dropped from 1,317.0 MI/d to 1,291.3 MI/d, and 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 small increases in lines A2.17 (Distribution System Operational Use) and A2.13 (water delivered to unmeasured non-households).

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

Distribution losses have reduced from 578.5 MI/d in AR12 to 548.6 MI/d in AR13 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 in year from 82.2 MI/d in AR12 to 68.5 MI/d. In comparison with the calculation performed for 2012/13, there has been a change to the main input data source used to provide a more accurate understanding of the number of supply pipe leaks that have been found and fixed in the report year. Without this change in input data, the reported number would have reduced further in comparison with the AR12 reported figure

## **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.

## **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 89.5% of properties in AR12 to 90.5% in AR13. DMA leakage has reduced from 576.9 MI/d in AR12 to 518.7 MI/d in the current reporting year. Service Reservoir leakage has increased by 0.6 MI/d to 8.9 MI/d and Trunk Main leakage has increased from 32.0 MI/d to 33.8 MI/d. Overall there is a reduction in total leakage from 617.2 MI/d in AR12 to 561.3 MI/d in AR13. 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 increased from 2.3% in AR12 to 3.0% for AR13.

## **A2.24 MLE Adjustment**

The MLE adjustment for AR13 is 13.8 MI/d. The overall AR13 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 AR12 is in part due to the increase in the Water Balance Closing Error (A2.23).

## **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 (MI/d)	Bottom Up Leakage (MI/d)	MLE Leakage (MI/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
AR13	617	561	575

The AR13 Maximum Likelihood Estimation (MLE) leakage is 575.2 MI/d and is reported with confidence grade B3. This is a reduction of 54.1 MI/d from the AR12 MLE leakage figure of 629.2 MI/d.

#### **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 Supply Points which receive non-potable supplies; some of these supply points have multiple meters.

A further estimated volume of 5.55 ML/day is added to the above consumption which is the volume measured at the outlet for the Buckieburn Farm and Freshwater Research Unit which they have supplied.

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

The PCC figure for AR13 is 148.8 l/head/day, compared with an AR12 reported figure of 150.0 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 210.0 l/head/day in AR12 to 177.2 l/head/day in AR13. 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 and remains at 4.1%. When applied to the domestic metered volume the total measured household meter under-registration is 0.007 MI/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 remains at 4.7%. The decrease in the meter under-registration volume from 18.2 MI/d to 17.8 MI/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 also be 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 water has increased by 18,048.

#### **A3.2 Population Waste – Summer**

To determine the increment of the summer population (above the winter population), a data set from Yell.com was used to identify properties which offer accommodation to visitors and to which was applied the average bed space supplied by Visit Scotland. A total of 91,661 of the 130,374 winter population also appeared in the sewer area.

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 17,415 for waste water.

### **A3.5-A3.11 Sewage - Volumes**

#### **A3.5 Unmeasured household volume (including exempt)**

The unmeasured household volume has decreased from 682.14 MI/d to 679.26 MI/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 remained at 0.027 MI/d in the report year.

The confidence grade remains at A2.

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

There is a marked increase in unmeasured non-household foul volume (17.4 MI/d to 21.4 MI/d) as a result of a number of gap sites being identified as part of a data project. There is not a corresponding increase in the billed properties reported in A1.14 as these gap sites are expected to have been marked vacant at mid-year when billed properties are reported.

The confidence grade remains at B3 as volumes are based on an estimate derived from the use of actual data from the installed FBM meters.

#### **A3.8 Measured non-household foul volume**

The total volume of foul waste from measured non-households has remained stable with only a slight increase from 139.2 MI/d to 139.7 MI/d.

The confidence grade remains at B3.



### **A3.9 Trade Effluent Volume**

The volume of trade effluent discharged has decreased from 91.452MI/d to 85.909MI/d. This figure is the volume associated with the DPIDs billed at P06 and doesn't take into account the disconnected SPIDs issue. When these are included, the volume increases to 86.951MI/d. 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 forecast for the volume is to increase to 86.031MI/d (87.073MI/d for all DPIDs). This has been attributed to normal variation as no analysis for this increase has taken place.

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.

Since market opening in 2008, Trade Effluent volumes have been calculated by Licensed Providers. Changes are currently being implemented so that in future these calculations will be carried out in the CMA systems. All necessary supporting information such as allowances, site configuration details and effluent meter details and readings will also be held in the CMA systems. These changes will bring greater transparency to all market participants and ensure that the data and calculations are subject to the same controls and audit as other areas of settlement. Trade Effluent volumes in future Annual Returns will therefore have been calculated by the CMA instead of LPs. The calculations to be applied by the CMA should reflect the same methodology as has been used to date by LPs but it is possible that the changes may have an impact on reported Trade Effluent volumes.

### **A3.10 Total Volume**

The confidence grade remains at B3.

### **A3.11 Volume septic tank waste**

The volume of septic tank waste has increased from 25.112MI to 31.094MI over the reporting period.

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.

The slight increase in unmeasured household load is a result of an increase in household population.

The decrease in measured household load is a result of the decrease in occupancy rate from 2.15 people per household with waste water to 2.13.

There has been no change in methodology therefore the confidence grade remains the same.

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

The non-household load is derived as  $300\text{g/m}^3$  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.

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.

### **A3.16 Trade effluent load**

The total BOD load discharged to the network has decreased from 22,525T to 20,449T. An additional 34T of BOD is associated with the discontinued SPIDs, so the figure which should be reported at A3.16 is 20,483T.

The forecast figure is 20,425T (20,459T 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.

### **A3.18-A3.21 Septic tank loads**

A decrease from 123.296t to 108.228t is reported in line A3.18 A lower volume of septic tank waste is being discharged to works inlets as an alternative to sludge treatment centres when compared to 2011/12.

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

There has been a significant increase in A3.20 other tanker load. This is because the weather has been significantly wetter and we have enjoyed increased leachate business with 3rd Party operators. In addition SLG are now using our services and has increased through put. Further, with site difficulties at Deerdykes, and at times at Kinniel Kerse, we have diverted leachates to Sheildhall from our Auchinlea contract with North Lanarkshire Council.

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

### **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 66,669t to 66,241t 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 waste water treatment sludge recycled was 123.520ttds, of which the majority came from the PPP/PFI works 104.356ttds. As with AR10 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 an overall increase in the volume of enhanced treated sludge was noted 1.198ttds. This was largely due to Galashiels and Troqueer where the majority of cake produced went from conventional to enhanced treatment. Galashiels increase of 0.981 ttds was due to Capital Investment of the site and Troqueer (1.429 ttds) was all enhanced treated. Perth and Kinneil Kerse conversely showing decreased quantities.

Conventional sludge production showed a small decrease by 2.708 ttds from the previous year. This is again due to Capital Investment project at Galashiels and the introduction of enhanced treatment at Troqueer giving a product suitable for agricultural use and subsequent removal of composting and digested sludge from this site.

Cumnock had issues with out of spec cake whereby 2.468 ttds was recycled to land restoration over the reporting period, unlike the year before.

A decrease of 0.160 ttds was recorded in sludge taken to landfill in 2012/13.

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

# E Tables – Operating Costs and Efficiency

## General Comments

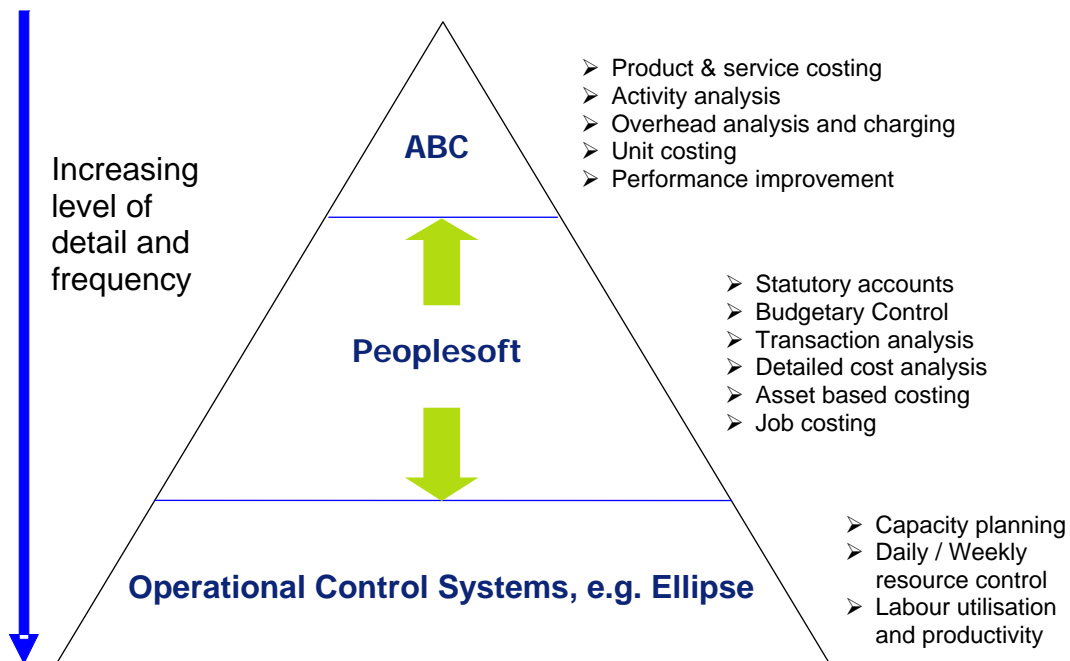
### Methodology & Cost Allocation

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.

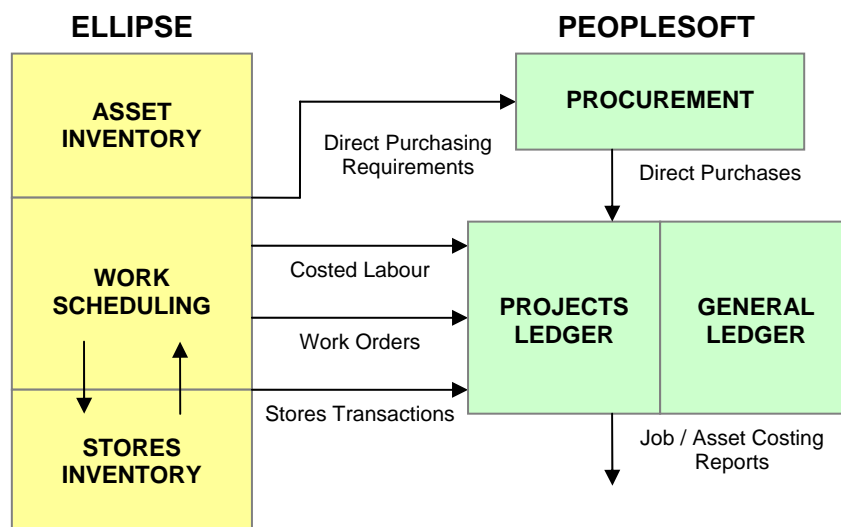
Activity Based Management data (financial and non financial) is captured in various corporate systems. The key systems which provide ABM analysis for E Tables are:



System	ABM Process Overview
<p>Ellipse Works &amp; Asset Management System</p>	<p>Ellipse is used to hold Scottish Water’s Asset Inventory and to manage operational activity by individual job (work order), activity and asset.</p> <p>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.</p> <p>Time and materials are then costed and interfaced to the Peoplesoft Financial System on a daily basis.</p> <p>See Overview diagram below.</p>
<p>Peoplesoft Financial &amp; Procurement System</p>	<p>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 &amp; Fixed Assets.</p> <p>Accounting separation within the Scottish Water group of companies has been enabled within Peoplesoft.</p> <p>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.</p> <p>Within Scottish Water capture of activity based information within Peoplesoft has been maximised through the set up of our coding structure, systems and processes.</p> <p>Cost codes have been set up within Peoplesoft to capture and sub-analyse costs by:</p> <ul style="list-style-type: none"> <li>○ Individual work order;</li> <li>○ Individual asset;</li> <li>○ Each capital or non regulated project;</li> <li>○ Each support department; and</li> <li>○ Expense subjective (account).</li> </ul> <p>All costs are held in Peoplesoft, and costed either directly through Peoplesoft Procurement or operational costing through the Ellipse-Peoplesoft interface.</p> <p>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.</p>

<p>Hyperion Activity Based Costing (ABC) System</p>	<p>Hyperion Profitability and Cost Management (HPCM) is an ABC system structured around Scottish Water's key (c.250) activities. ABC is run periodically (typically annually) to cover all profit and loss expenditure.</p> <p>Peoplesoft feeds total expenditure directly into Hyperion.</p> <p>Where activity splits have already been captured, e.g. Ellipse effort by activity / asset, these are also fed directly into Hyperion.</p> <p>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.</p> <p>Output from Hyperion provides analysis of the full cost of services. These services have been structured to match E &amp; M Table activity classifications, and therefore Hyperion output directly feeds these tables.</p> <p>Non financial driver data is collected from a variety of corporate systems and input to Hyperion.</p>
<p>Driver Data Systems</p>	<p>Examples of systems and drivers are:</p> <ul style="list-style-type: none"> <li>○ LIMS – Lab tests processed and samples taken;</li> <li>○ Oracle CRM – Customer calls and written contacts;</li> <li>○ Gemini – Waste movements;</li> <li>○ Ellipse – Number of jobs, man hours, stores issues, etc; and</li> <li>○ Peoplesoft – Number of invoices, purchase orders, customer bills, man hours.</li> </ul>

### 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 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 2012/13 84% 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 Horizons 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	721.9	
Admin Expenses	<u>144.1</u>	
<b>SW Group Expenditure</b>		<b>866.0</b>
Less Business Stream		(34.7)
IFRS adjustments		<u>25.3</u>
<b>Total Expenditure</b> (excluding Business Stream and IFRS)		<b><u>856.6</u></b>

### Represented by

SW Regulated	830.8
SW Non Regulated	2.1
Horizons	22.3
International	1.4

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	M18/WW Tables Total	Diff M18 - E1/2/3a	E Tables			
					Total	E1	E2	E3a
Employment	144.1		366.9		346.5	203.2	143.3	0.0
Other	226.1							
<b>Opex</b>	<b>370.3</b> <sup>✓</sup>	<b>3.4</b>	<b>366.9</b> <sup>✓</sup>	<b>20.3</b>	<b>346.5</b>	<b>203.2</b>	<b>143.3</b>	<b>0.0</b>
PFI	150.0	(3.6)	153.7	0.0	153.7	0.0	0.0	153.7
IMC	110.0	0.1	109.9	0.1	109.9	76.0	33.8	0.0
Depreciation	227.0		227.4		221.9	118.5	103.3	0.0
Grant Amortisation	2.4	(0.1)	(1.1)	5.4	(0.9)	(0.7)	(0.2)	0.0
Amort PFI	(2.1)		0.0		0.0			
Gain on assets	(1.1)		0.0		0.0			
<b>Expenditure</b>	<b>856.6</b> <sup>✓</sup>	<b>(0.2)</b>	<b>856.8</b> <sup>✓</sup>	<b>25.8</b>	<b>831.0</b>	<b>397.1</b>	<b>280.2</b>	<b>153.7</b>
Explained by								
Charges to SWBS for support		0.2						

\* Excludes Business Stream, IFRS & IAS19

The line differences are table presentation differences explained as follows:

- £3.6m 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 (£2.5m), terminal pumping station costs pumping to PFI works (£0.6m) and support costs for the PFI team (£0.5m).
- £0.2m 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.
- £25.8m 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 £8.7m to £346.6m (as detailed below).

	<b>2012/13</b>	<b>2011/12</b>	<b>Variance</b>
	£m	£m	£m
Total operating costs – Water	203.240	202.347	(0.893)
Total operating costs – Waste	143.309	135.490	(7.819)
Exceptional costs – Water	0.000	0.000	+0.000
Exceptional costs – Waste	0.000	0.000	+0.000
	<b>346.549</b>	<b>337.837</b>	<b>(8.712)</b>

Scottish Water's reported regulated operating costs of £349.3m reconcile to the E Table total operating costs of £346.6m as detailed below:

<b>Operating Expenditure</b>	<b>346.6</b>
Add SW Opex allocated to PFI (Table E3a)	3.6
Less SWBS Support charges	(0.2)
Less Depreciation in Service Charges to Horizons	(0.7)
<b>Regulated SW Operating Expenditure</b>	<b>349.3</b>

The £8.7m increase in operating costs includes the absorption of the following increases:

- £7.0m impact of inflation (based on average RPI of 3.1%);
- £3.0m new operating costs resulting from capital investment;
- £3.0m power prices;
- £3.4m local authority rates changes; and
- £6.3m bad debt charges.

These increases were offset by the following reductions:

- £3.5m costs of voluntary redundancy and restructuring, compared to £15.5m in 2011/12 – a decrease of £12.0m;
- £0.2m carbon tax; and
- £0.1m SEPA and WIC costs.

Underlying, controllable costs have therefore reduced in real terms by £1.3m (0.6%) reflecting improved leakage reduction, more efficient operations, and improved contractor management.

## Functional Expenditure

Total functional expenditure (lines E1.10 & E2.09) decreased by £0.3m (0.1%) from 2011/12 (as detailed below).

Analysis of functional expenditure –

	<b>2012/13</b>	<b>2011/12</b>	<b>Variance</b>
	£m	£m	£m
Total functional costs – Water	113.134	118.022	+4.888
Total functional costs – Waste	98.348	93.724	(4.624)
	<b>211.482</b>	<b>211.746</b>	<b>+0.264</b>

Direct employment costs (E1.1 & E2.1) decreased by £3.4m (5.2%) to £61.2m. The main reasons for the decrease were: efficiencies generated by the PACE (Performance and Customer Excellence) project of £1.6m; reduction in WTW (£0.5m) and STW (£0.9m) operating costs; and mains repairs of £0.6m; partly offset by increase customer focussed costs to improve OPA of £0.5m.

The average headcount employed during the year was 3,272, compared to 3,224 in 2011/12. The number of employees in total at March 2013 was 3,277, an increase of 47 full time equivalents from the March 2012 figure (3,230). The increase reflects employees working on capital projects displacing contractors and the expansion of the number of apprentices and management trainees.

Direct power costs (E1.2 & E2.2) increased by £2.5m (7.0%) to £38.9m. The main reasons for the increase were: increased average unit power prices of 0.008p (10.2%), costing £2.5m; and increased consumption from 433 GWh to 446 GWh (3.0%), costing £0.9m, made up from underlying consumption increase of £0.3m and additional costs resulting from capital investment of £0.6m; partly offset by an increase in renewable energy credits of £0.4m; and a reduction in carbon tax of £0.2m.

Hired and contracted costs (E1.3 & E2.3) increased by £0.7m (2.9%) to £25.5m. The main reasons for the increase were: provision for sewer intervention activity as a result of contractual arrangements of £2.1m; and additional costs resulting from capital investment of £0.3m; partly offset by a decrease in leakage detection and resulting mains repairs of £1.7m.

Materials and consumables expenditure (E1.4 & E2.4) increased by £0.3m (2.0%) to £15.2m. The main reasons for the increase were: additional costs resulting from capital investment of £0.3m.

SEPA costs (E1.5 & E2.5) increased by £0.6m (5.8%) to £11.4m due mainly to introduction of Sewer Network Licences (SNL) for the sewer network.

Other direct costs (E1.7 & E2.6) increased by £0.3m (3.5%) to £8.1m mainly due to increase in insurance claim costs of £0.3m, mostly in relation to sewer incidents;

General and Support costs (E1.9 & E2.8) decreased by £1.4m (2.6%) to £51.1m. The main decreases were: lower VR and restructuring costs of £7.5m; partly offset by an increase in support costs of £2.9m, mainly IT support and statutory property repairs; additional costs resulting from capital investment of £1.7m, mainly IT infrastructure improvements and software upgrades; and an increase in asset management operating costs due to the switch in activity from capital programme management and delivery to asset strategy development and planning of £0.8m.

### Business activities

Total business activities expenditure (E1.14 & E2.13) remains unchanged at 39.7m (as detailed below).

	<b>2012/13</b>	<b>2011/12</b>	<b>Variance</b>
	£m	£m	£m
Customer services	20.241	18.877	(1.364)
Scientific services	12.332	12.727	+0.395
Other business activities	7.103	8.070	+0.967
	<b>39.676</b>	<b>39.674</b>	<b>(0.002)</b>

Customer services costs have increased by £1.4m (7.2%) to £20.2m, due to increase in management of wholesale billing data £0.8m and increases in technology and property business support costs.

Scientific services regulated operating expenditure decreased by £0.4m (3.1%) to £12.3m, mainly due to operational efficiencies.

Other Business Activities costs decreased by £1.0m (12.0%) to £7.1m, due to a decrease in CMA costs of £0.1m; and a decrease in WICS fees of £1.0m; partly offset by an increase in other payments to WICS of £0.3m.

### Rates

Local authority rates (E1.15 & E2.14) increased by £3.4m (5.9%) to £60.8m due to an increase in uniform business rate of 5.8%.

### Doubtful debts

Total regulated doubtful debt costs have increased by 3.9m (16.4%), as detailed below. The bad debt charge in the year represents 3.7% of billed revenue for 2012/13. This percentage is in line with the best ever years of historical collection recorded from 2002 to 2006.

	<b>2012/13</b>	<b>2011/12</b>	<b>Variance</b>
	£m	£m	£m
Regulated	27.926	24.001	(3.925)
Non Regulated	0.126	0.100	(0.026)
	<b>28.052</b>	<b>24.101</b>	<b>(3.951)</b>

### 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 £1.7m (34.0%) as detailed below, mainly due to increased bad debt costs of £2.3m; partly offset by reduction in support services provided to Scottish Water Business Stream of £0.5m.

	<b>2012/13</b>	<b>2011/12</b>	<b>Variance</b>
	£m	£m	£m
Core third party services	6.646	4.960	(1.686)
	<b>6.646</b>	<b>4.960</b>	<b>(1.686)</b>

### Capital maintenance

Capital maintenance costs (E1.30 & E2.29) increased by £3.1m (0.9%) to £330.8m; mainly due to increase in the Infrastructure Maintenance Charge of £2.5m.

## Water/Wastewater Split of Costs

The proportion of functional expenditure to water activities has decreased to 54% in 2012/13 from 56% in 2011/12, as detailed in the table below.

	2012/13	2012/13	2011/12	2011/12
	£m	%	£m	%
Water	113.134	53.5%	118.022	55.7%
Wastewater	98.348	46.5%	93.724	44.3%
	<b>211.482</b>	100.0%	<b>211.746</b>	100.0%

Water functional expenditure decreased by £4.9m (4.1%) from 2011/12 to £113.1m. These decreases occurred as detailed below:

- £2.1m (5.8%) decrease in employment costs from 2011/12 reflecting efficiencies generated by PACE project of £1.1m; reduction in WTW operating costs of £0.5m, following wet summer and incidents in prior year; and reduction in mains repairs £0.6m; partly offset by increased customer focussed costs to improve OPA of £0.2m;
- £1.0m (6.0%) increase in power costs is primarily due to increased consumption and higher prices of £1.4m; and additional costs resulting from capital investment of £0.1m; offset by increase in renewable energy credits of £0.4m; and carbon tax decrease of £0.1m;
- £1.9m (13.0%) decrease in hired and contracted costs is mainly due to a reduction in leakage detection and resulting mains repairs of £1.7m; partly offset by additional costs resulting from capital investment of £0.1m;
- £0.1m (0.6%) increase in materials and consumables is due to additional costs resulting from capital investment of £0.3m;
- SEPA costs remained stable at £2.7m;
- Other direct costs remained stable at £5.5m; and
- £1.8m (5.9%) decrease in general and support costs was due to: lower VR and restructuring costs of £4.5m; partly offset and increase in support costs of £1.8m, including additional costs resulting from capital investment; and an increase in asset management operating costs due to the switch in activity from capital programme management and delivery to asset strategy development and planning of £0.6m.

Wastewater functional expenditure increased by £4.6m (4.9%) from 2011/12 to £98.3m. These increases occurred as detailed below:

- £1.2m (4.5%) decrease in employment costs from 2011/12 reflecting efficiencies generated by PACE project of £0.5m; reduction in STW operating costs of £0.9m; partly offset by increased customer focussed costs to improve OPA of £0.2m;
- £1.6m (7.7%) increase in power costs is primarily due to increased consumption and higher prices of £1.3m; and additional costs resulting from capital investment of £0.5m; offset by carbon tax decrease of £0.2m;
- £2.6m (26.3%) increase in hired and contracted costs, due to a provision for sewer intervention activity as a result of contractual arrangements of £2.1m; and additional operating costs as a result of capital investment of £0.2m;
- £0.2m (7.8%) increase in materials and consumables;
- £0.7m (8.3%) increase in SEPA charges due mainly to introduction of Sewer Network Licences (SNL) for the sewer network;
- £0.3m (13.1%) increase in other direct costs due to a increase in insurance claim costs of £0.3m, mostly in relation to sewer incidents; and
- £0.4m (2.0%) increase in general and support costs due to: an increase in support costs of £2.8m, including additional costs resulting from capital investment; and an increase in asset management operating costs due to the switch in activity from capital programme management and delivery to asset strategy development and of £0.2m; partly offset by lower VR and restructuring costs of £3.0m.

**Confidence Grades** – Confidence grades on the tables remain consistent with 2011/12.

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 need 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:

<b>PPP Scheme</b>	<b>Wastewater Treatment Works *</b>
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.

**TABLE E3****E3.0-3 Project data****E3.1 Annual average resident connected population**

The annual average resident connected population increased by 10,003 to 2,126,521. 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 1,209 to 25,298. The confidence grade remains at B3 which is unchanged from the Annual Return 2011/12.

**E3.3 Population equivalent of total load received**

The population equivalent of total load received decreased by 19,455 to 3,016,454. This drop is due to a reduction in the trade effluent 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 (70.49% of total load)*

The population load increased by 10,013 p.e.



*Tourist (0.84% of total load)*

The tourist load decreased by 1,209 p.e.

*Non-domestic load (13.72% of total load)*

The non-domestic load increased by 4,061 p.e.

*Trade effluent (14.63% of total load)*

The trade effluent load decreased by 32,041 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 decreased by 3 p.e.

*Imported public septic tanks (<0.01% of total load)*

The imported public septic tanks load decreased by 44 p.e.

*Imported other (<0.01% of total load)*

Imported other loads decreased by 2 p.e..

*Imported WWTW sludge (0.25% of total load)*

The imported WWTW sludge load increased by 21 p.e.

*Imported WTW sludge*

No imported WTW sludge was treated at PPP treatment works.

*Sludge return liquors (0.04% of total load)*

The sludge return liquor load reduced by 241 p.e. The confidence grade remains at B3 which is unchanged from 2011/12.

### **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, Dalarnock 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** - 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	Allanfean 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.

**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

At Dalmuir there is an Improvement Plan and Variation Notice in place from May 2012. This enables SEPA to give dispensation for ammonia compliance under CAS 4.3.

**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:

$$(1-(total\ number\ of\ failures/total\ number\ of\ samples)) \times 100$$

The SEPA Annual Compliance Report for period ending 31 December 2012 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	17/05/12 E	Elevated sludge stocks across the site as a result of asset and operational issues within the Sludge Treatment Centre. The reaction soon followed on, with installation of a temporary centrifuge to draw down levels.
Persley	CAR	BOD	09/01/12 E	Spot exceedance as a result of poor biology within the activated sludge plant (poor diversity of population). Plant partially reseeded to restore operation. Management and process controls changed to try and address the issues.
Lossiemouth	UWWTD	COD	02/04/12 E	One treatment out of service for maintenance. An EPI was raised for the period in question but sample was still taken by SEPA.
Seafield	UWWTD	BOD	30/01/12 E	Site daily results indicated compliant performance. This was challenged with SEPA and they acknowledged that the result was compliant on percentage reduction. However, the official SEPA record was never amended to reflect this clarification.
Newbridge	CAR	Ammonia	02/03/12 E	Problems with alum tank affecting pH of wastewater and hence nitrification process.
Dalmuir	CAR	Ammonia	14/03/12 E 17/04/12 E	Low flow coupled with pollution incidents
Inverclyde	UWWTD	BOD	15/02/12 E	Rogue result COD lower than BOD. SEPA had undertaken to remove result from compliance report, but report to Dec 2012 still shows exceedance.

### **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.

Fraserburgh 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 mains, 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.

**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. Leven PS rising main to storm tank and return drain not deemed to be a 'critical sewer'

**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 (m<sup>3</sup>/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 12/13 to the pumps at Broughty Castle from 16kW to 18.5 kW for the duty, and standby pumps.

**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.

**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 (Watermill)
Lossiemouth	Burghead, Cummington, 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 – PPP Cost Analysis

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](http://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.

Site	E3a.2 N	E3a.9 T	E3a.17 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

### 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	N	No WML charge included in invoice
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.

Site	E3a.5	E3a.12	E3a.20	Comment
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	12/13 £m	11/12 £m	Variance £m	Comment
Ft William	0.009	0.024	-0.015	12/13 includes lower consultants costs - £0.012m, lower ABM support costs +£0.003m
Inverness	0.513	0.639	-0.126	12/13 includes lower consultants costs - £0.027m, and higher other Scottish Water operating costs +£0.005m, lower sludge tankering and disposal costs -£0.109m, higher terminal pumping costs +£0.009m, and lower ABM support costs -£0.004m

Site	12/13 £m	11/12 £m	Variance £m	Comment
Hatton	0.286	0.371	-0.085	12/13 includes lower legal/consultants costs -£0.036m, and lower other Scottish Water operating costs -£0.010m, lower sludge tankering costs -£0.036m, higher terminal pumping costs +£0.003m, and lower ABM support costs -£0.006m
Nigg	1.154	1.257	-0.103	12/13 includes lower legal/consultants fees -£0.032m, and higher other Scottish Water operating costs +£0.048m, lower sludge tankering costs -£0.121m, and higher ABM support costs +£0.002m
Persley	0.018	0.021	-0.003	
Peterhead	0.009	0.038	-0.029	12/13 includes lower consultants costs - £0.007m, lower terminal pumping costs - £0.022m
Fraserburgh	0.008	0.017	-0.009	12/13 includes lower consultants costs - £0.007m, and lower other Scottish Water operating costs -£0.001m, lower ABM support costs - £0.001m
Lossiemouth	0.243	0.340	-0.097	12/13 includes lower consultants costs - £0.036m, and lower other Scottish Water operating costs -£0.051m, lower sludge tankering costs -£0.002m, higher terminal pumping costs +£0.003m, and lower ABM support costs -£0.011m
Buckie	0.008	0.018	-0.010	12/13 includes lower consultants costs - £0.007m, and lower other Scottish Water operating costs -£0.001m, lower ABM support costs - £0.002m
Banff/Macduff	0.015	0.028	-0.013	12/13 includes lower consultants costs - £0.011m, lower ABM support costs -£0.002m
Seafield	0.121	0.201	-0.080	12/13 includes lower consultants costs - £0.058m, and lower other Scottish Water operating costs -£0.007m, lower ABM support costs - £0.015m
Newbridge	0.023	0.024	-0.001	
East Calder	0.009	0.009	0.000	
Blackburn	0.005	0.005	0.000	

Site	12/13 £m	11/12 £m	Variance £m	Comment
Whitburn	0.005	0.006	-0.001	
Levenmouth	0.255	0.226	0.029	12/13 includes lower legal/consultants costs -£0.037m, higher Scottish Water operating costs +£0.061m, and higher ABM support costs +£0.005m
Dalmuir	1.590	0.937	0.653	12/13 includes higher legal/consultants costs +£0.068m, includes higher Scottish Water sludge disposal costs +£0.533m, and higher ABM support costs +£0.052m
Daldowie	2.806	2.499	0.307	12/13 includes lower legal/consultants costs -£0.063m, higher Shieldhall centrifuging costs and associated tanker diversion costs +£0.638m, lower other Scottish Water operating costs -£0.011, lower sludge tankering costs -£0.298m, and higher ABM support costs +£0.041m
Meadowhead	0.833	0.948	-0.115	12/13 includes lower legal/consultants costs -£0.032m, and lower other Scottish Water operating costs -£0.005m, lower terminal pumping costs -£0.071m, and lower ABM costs -£0.007m
Stevenston	0.335	0.374	-0.039	12/13 includes lower consultants costs -£0.020m, lower other Scottish Water operating costs -£0.001m, lower terminal pumping costs -£0.013m, and lower ABM costs -£0.005m
Inverclyde	0.101	0.111	-0.010	12/13 includes lower consultants costs -£0.015m, lower other Scottish Water operating costs -£0.001m, higher terminal pumping costs +£0.010m, and lower ABM costs -£0.004m
<b>TOTAL</b>	<b>8.346</b>	<b>8.093</b>	<b>0.253</b>	

**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	12/13 £m	11/12 £m	Variance £m	Comment
Ft William	3.311	3.563	-0.252	12/13 higher flows/loads plus inflation +£0.252m
Inverness	5.611	6.183	-0.572	12/13 penalties -£1.11m, lower flows/loads plus inflation -£0.078m, release of accruals -£0.035m, 11/12 included penalties -£474k, release of accruals -£0.177m,
Hatton	21.435	21.13	0.305	12/13 higher flows/loads plus inflation £0.363m and release of accrual -£0.034, 11/12 included under accruals +£0.024
Nigg	14.966	13.386	1.580	12/13 penalties -£0.023m, higher flows/loads, plus inflation +£1.595m, release of accruals of -£0.038m, 11/12 included penalties -£0.075m, under accruals +£0.029m.
Persley	2.489	1.971	0.518	12/13 penalties -£0.01m, higher flows/loads, plus inflation +£0.430m, sampling +£0.008m, under accruals of +£0.006m, 11/12 included penalties -£0.078m, release of accruals of -£0.006m,
Peterhead	1.763	1.552	0.211	12/13 higher flows/loads, plus inflation +£0.211m
Fraserburgh	1.992	1.834	0.158	12/13 higher flows/loads, plus inflation +£0.149m, chemical dosing +£0.009m
Lossiemouth	4.480	4.272	0.208	12/13 penalties -£0.014m, higher flows plus inflation +£0.158m, 11/12 included penalties -£0.062m, splitting of electricity supply -£0.002m
Buckie	2.854	2.528	0.326	12/13 higher flows, plus inflation +£0.223m, under accruals of +£0.103m
Banff/Macduff	3.111	2.986	0.125	12/13 higher flows, plus inflation +£0.125m
Seafield	19.181	19.245	-0.064	12/13 based on 99.52% compliance with the contract -£0.111m, plus inflation +£0.812m,
Newbridge	2.776	2.786	-0.010	Seafield Odour Improvement project -£0.362m, odour emissions inventory and modelling +£0.1m, higher business rates +£0.92m, and release of accruals -£0.752m,
East Calder	1.514	1.519	-0.005	11/12 based on 100% compliance with the contract, other costs +£0.005m, release of accruals -£0.14m
Blackburn	0.757	0.760	-0.003	12/13 higher flows +£0.352m, plus inflation +£0.320m, Odour Action Plan +£0.32m, and release of accruals -£0.279m, 11/12 included release of accruals -£0.359m.
Whitburn	1.009	1.013	-0.004	12/13 higher flows, plus inflation +£0.073m, Annual operations compensation payment +£0.036m, New Investments Opex +£0.005m, centrifuge project +£0.310m, additional works +£0.026m, Swap Extension -£0.012m, business rates + £0.041, accrual reversals -£0.222m, 11/12 included release of accruals -£0.125m.
Dalmuir	10.822	10.440	0.382	12/13 lower sludge volumes plus inflation -£0.807m, necessary change costs -£0.082m, additional works -£0.081, higher business rates +£0.022m, claim excess ragging +£0.25m, release of accrual -£0.150m, NEW LINE 11/12 included release of accruals -£0.081m,
Daldowie	19.193	19.960	-0.767	12/13 service fee inflation +£0.145m, Landfill Tax & Gas cost +£0.060m, higher business rates +£0.024m, trader necessary change
Meadowhead	7.797	7.716	0.081	

Site	12/13 £m	11/12 £m	Variance £m	Comment
				+£0.018m, additional works -£0.539m, under accruals +£0.048m, 11/12 included release of accruals -£0.324m.
Stevenston	3.430	4.141	-0.711	12/13 lower flows, plus inflation -£0.031m, trader necessary change -£0.042m, additional works -£0.75m, higher business rates +£0.016m, release of accruals -£0.101m, 11/12 included release of accruals -£0.197m
Inverclyde	3.544	3.699	-0.155	12/13 service fee inflation +£0.070m, additional works -£0.25m, higher business rates +£0.007m, 11/12 included release of accruals -£0.018m
<b>TOTAL</b>	<b>145.315</b>	<b>142.893</b>	<b>2.422</b>	

**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** - Contract end date is as defined in the Contract.

## Table E4 Water Explanatory Factors - Resources and Treatment

### E4.1-5 Source Types

The number of sources has decreased by 3 to 301. This reduction is due to a number of previously reported sources supplying water treatment works (WTW) which were closed during 2012/13 (6 sources). However, there were also 3 new sources added. Details are provided in the table below:

	<i>2011/12 No. of sources</i>	<i>304</i>
Reductions	Source or WTW closures	6
Additions	New sources	3
	<b>2012/13 No. of sources</b>	<b>301</b>

Distribution input (DI) reduced by 55.456 MI/d to 1839.974 MI/d.

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

Source Type	2011/12	2012/13	Net Change
	<i>MI/d</i>		
Impounding reservoirs	1,415.401	1,370.705	-44.696
Lochs	32.112	26.586	-5.526
River and burn abstractions	383.732	372.432	-11.300
Boreholes	64.184	70.250	+6.066
<b>Total</b>	<b>1,895.430</b>	<b>1,839.974</b>	<b>-55.456</b>

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 number of sources is B3. While the number is extracted from our asset inventory, it requires adjustment based on additional information that is not currently held in the asset inventory, namely which sources feed to a particular WTW and whether they are a direct or indirect supply. The confidence grade for columns 110-140 (the average daily output of these sources) remains at 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 2008/2009. In that year, A was 2,146.009 MI/d and B was 2,247.935 MI/d. The peak to average ratio is therefore 1.047.

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 26.6m, a decrease of 0.1m 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<sup>4</sup>) 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 2 to 270; the total distribution input (DI) reduced by 55.4 MI/d to 1,840.0 MI/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	2011/12		2012/13		Net Change	
	No.	% <sup>(1)</sup>	No.	%	No.	%
<= 1 MI/d	153	1.2	154	1.2	+1	0
>1, <= 2.5 MI/d	25	1.3	25	1.3	0	0
>2.5, <= 5 MI/d	28	3.5	28	3.3	0	-0.2
>5, <= 10 MI/d	17	4.4	16	4.5	-1	+0.1
>10, <= 25 MI/d	20	11.9	20	11	0	-0.9
>25, <= 50 MI/d	12	15.1	12	15.4	0	+0.3
>50, <= 100 MI/d	10	24.2	9	22.7	-1	-1.5
>100, <= 175 MI/d	5	17.2	4	20.3	-1	+3.1
>175 MI/d	2	21.2	2	20.3	0	-0.9
<b>Total</b>	<b>272</b>		<b>270</b>		<b>-2</b>	

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

	<b>Total</b>
Functional expenditure:	£m
2012/13	52.849
2011/12	53.330
<b>Variance</b>	<b>+0.481</b>

Water resources and treatment costs decreased by £0.5m (0.9%) from 2011/12. This is analysed as follows:

- £1.8m (12.7%) decrease in employment costs due to efficiencies generated by PACE project of £1.1m; and decreased WTW operating costs following wet summer and incidents in prior year of £0.5m;
- £0.5m (5.4%) increase in power costs is primarily due to increase in consumption and price of £0.9m; and additional costs resulting from capital investment of £0.1m; offset by the increase in energy generation credits of £0.4m; and carbon tax decrease of £0.1m;
- Hired and contracted remained stable at £2.8m, with additional costs resulting from capital investment of £0.1m; offset by a decrease in sludge disposal costs of £0.1m;
- £0.1m (1.0%) increase in materials and consumables due to additional costs resulting from capital investment of £0.3m;
- £0.3m (17.2%) increase in other direct costs; and
- £0.6m (4.5%) increase in general and support costs.

Water resources and treatment costs analysed by region:

	North	East	South	West	Direct	General and Support	Total
Functional expenditure:	£m	£m	£m	£m	£m	£m	£m
2012/13	9.043	10.519	8.055	12.464	<b>40.081</b>	12.768	<b>52.849</b>
2011/12	8.881	10.943	8.513	12.775	<b>41.112</b>	12.218	<b>53.330</b>
<b>Variance</b>	<b>(0.162)</b>	<b>+0.424</b>	<b>+0.458</b>	<b>+0.311</b>	<b>+1.031</b>	<b>(0.550)</b>	<b>+0.481</b>

Changes to the numbers of WTW by process type have arisen as a result of operational changes and process re-classifications in WTW during 2012/13. Re-stating 2011/12 figures on like-for-like basis shows the following variations:

Analysis of water resources and treatment costs by process type:

	2012/13	2011/12	Variance
	£m	£m	£m
Process Type			
SD : Simple Disinfection	1.543	1.824	+0.281
W1 : SD plus simple physical or chemical treatment	0.112	0.117	+0.005
W2 : Single stage complex physical or chemical treatment	8.455	7.894	(0.561)
W3 : Multiple stage complex treatment, excluding W4	28.565	29.241	+0.676
W4 : Very high cost treatment Process	1.406	2.036	+0.630
<b>Direct</b>	<b>40.081</b>	<b>41.112</b>	<b>+1.031</b>
General and Support	12.768	12.218	(0.550)
<b>Total</b>	<b>52.849</b>	<b>53.330</b>	<b>+0.481</b>

Analysis of water resources and treatment costs by size band:

	2012/13	2011/12	Variance
	£m	£m	£m
Size band			
<=1 MI/d	5.369	5.858	+0.489
>1 to <=2.5 MI/d	2.653	2.645	(0.008)
>2.5 to <=5 MI/d	3.623	3.948	+0.325
>5 to <=10 MI/d	3.914	3.765	(0.149)
>10 to <=25 MI/d	6.713	7.355	+0.642
>25 to <=50 MI/d	6.276	5.993	(0.283)
>50 to <=100 MI/d	4.413	5.262	+0.849
>100 to <=175 MI/d	3.845	3.513	(0.332)
>175 MI/d	3.275	2.773	(0.502)
<b>Direct</b>	<b>40.081</b>	<b>41.112</b>	<b>+1.031</b>
General and Support	12.768	12.218	(0.550)
<b>Total</b>	<b>52.849</b>	<b>53.330</b>	<b>+0.481</b>

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

- Aviemore WTW [North, 5-10 MI/d, W3] replaced Blackpark WTW [North, 5-10 MI/d, SD] with a net increase of £0.2m (£0.2m increase in Power due to process and pumping);
- Badentinan WTW [East, 25-50 MI/d, W3] increased by £0.1m due to major tank cleaning;
- Balmore WTW [West, 175+ MI/d, W2] increased £0.6m mainly due to power usage by capital project at Loch Lomond source of £0.4m;
- Carron Valley WTW [West, 100-175 MI/d, W3] increased by £0.2m due to the main out of Gartcarron WTW [West, 2.5-5 MI/d, W3], with a net increase of £0.1m;
- Daer WTW [South, 100-175 MI/d, W3] increased by £0.1m due to the main out of Glassford WTW [South, 10-25 MI/d, W3], with a net decrease of £0.2m;
- Glencourse WTW [South, 100-175 MI/d, W3] replaced Alnwickhill WTW [South, 50-100 MI/d, W4] and Fairmilehead WTW [South, 100-175 MI/d, W3] during February 2012 with a net increase of £0.1m (£0.2m increase in chemicals due to process and £0.2m decrease for energy generation credits);
- Invercannie WTW [East, 25-50 MI/d, W3] increase by £0.1m due to the main out of Glendye WTW [East, 2.5-5 MI/d, W3], with a net decrease of £0.1m;

- Lintrathen WTW [East, 25-50 MI/d, W2] increased due to reduction in energy generation credits of £0.1m (prior year included £0.1m credits for earlier years);
- Turret WTW [West, 50-100 MI/d, W3] decreased £0.5m due to increase in energy generation credits;

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 £40.1m (E1.8) total direct resource and treatment costs, £38.4m of costs or 95.8% (£43.2m less £3.5m 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 20,056 to 5,097,931. 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 19,869 to 2,601,377. 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 has been downgraded to B4, inline with table line A1.10.

### **E6.3            Volume of water delivered to households**

The volume of water delivered to households decreased by 16.2 MI/d to 810.4 MI/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 remains at B2.

**E6.4 Volume of water delivered to non-households**

The volume of water reported as delivered to non-households decreased by 9.0 MI/d to 419.8 MI/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<sup>2</sup>.

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 12 to 298.

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

	<b>Total</b>
Functional expenditure:	£m
2012/13	60.285
2011/12	64.692
	<hr/>
<b>Variance</b>	<b>+4.407</b>
	<hr/>

Water distribution costs decreased by £4.4m (6.8%), from 2011/12. This is analysed as follows:

- £0.3m (1.4%) decrease in employment costs due to reduction in mains repairs £0.6m; partly offset by increased customer focussed costs to improve OPA of £0.2m;
- £0.5m (6.9%) increase in power costs primarily due to increase in consumption and price of £0.6m; offset by carbon tax decrease of £0.1m;
- £1.9m (15.9%) decrease in hired and contracted services due mainly to leakage detection and resulting mains repairs of £1.7m;
- Materials and consumables remained stable at £1.5m;

- £0.3m (7.5%) decrease in other direct costs; and
- £2.3m (13.1%) decrease in general and support costs.

Water distribution costs are analysed by region:

	North	East	South	West	Total	General and Support	Total
Functional expenditure:	£m	£m	£m	£m	£m	£m	£m
2012/13	5.518	11.447	12.499	15.275	<b>44.739</b>	15.546	<b>60.285</b>
2011/12	5.931	12.802	13.522	14.554	<b>46.809</b>	17.883	<b>64.692</b>
<b>Variance</b>	<b>+0.413</b>	<b>+1.355</b>	<b>+1.023</b>	<b>(0.721)</b>	<b>+2.070</b>	<b>+2.337</b>	<b>+4.407</b>

**Confidence Grades** – Confidence grades on Table E6 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 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 238 km (0.5%).

The inventory is reported from our corporate GIS, where the diameter field is populated to 99.3% leaving 339km (0.7%) of mains not populated with diameter. The default value used to infill is DN150, falling into Band 1, being the size band containing the largest reported length.

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 decreased by 481.1 km (3.60%) to 12,871.2km. This was due to mains being renewed, relined or abandoned.

The report relies on population of the material and lining attributes in the inventory. 214km of GIS potable main was populated by the Infill material model and is defaulted to unlined spun iron, constituting 0.4% 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 >320mm diameter**

The total length of mains greater than 320mm diameter increased by 27.01km to 3,909.4km.

As the default value used to infill is DN150, with no adjustment for statistical spread, the length of mains greater than 320mm 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 559 to 8,198 over the report year representing a 6.4% reduction on last year.

An overall declining trend in the number of bursts was evident throughout the report year.

The trend over the last three years has generally been of a decrease in the number of customer reported bursts, with a 16.8% decrease overall. This includes a 6.4% decrease in the report year. In 2011/12 there was a 16.4% decrease in the number of non-customer-reported bursts and a further 3.5% decrease in the report year.

The annual number of non-customer-reported bursts for the reporting year is 19% of the total number of bursts, leaving 81% being customer reported bursts. This split is comparable to last few years.

The confidence grade remains at B3.

**E6.20 Leakage level**

The reported top-down leakage level has decreased by 43.5 MI/d from 660.7 MI/d in 2011/12 to 617.2 MI/d in 2012/13.

The confidence grade remains at B3.

We also report leakage in terms of Maximum Likelihood Estimation (MLE) leakage in A.2 and G.3 tables. Our MLE reported leakage for 2012/13 is 575.2 MI/d which is a 54.0 MI/d reduction on our reported MLE leakage of 629.2 MI/d for 2011/12.

**E6.21 Properties reported for low pressure**

The overall number of low pressure properties has reduced from 1,542 to 604. Targeted investment and operational changes have improved pressure to 834 properties during 2012-13. 21 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 175 properties being removed through better information. 33 properties were added as a result of asset deterioration and 17 properties have been added due to operational changes.

The confidence grade remains at B2.

<i>20011/12 Properties reported for low pressure</i>	<i>1,542</i>
Removed due to operational improvements	-395
Removed due to asset improvements	-439
Removed due to better information	-175
Added due to asset deterioration	+33
Added due to better information	+21
Added due to operational changes	+17
<b>2012/13 Properties reported for low pressure</b>	<b>604</b>

## **E6.22-25 Pumping Stations**

### **E6.22 Total number of pumping stations**

The total number of pumping stations increased by 19 to 590. The table below shows the change in the number of stations recorded in the corporate asset inventory as being operational during this year:

<i>2011/12 No. of pumping stations</i>	<i>571</i>
Stations removed	-6
Stations added	25
<b>2012/13 No. of pumping stations</b>	<b>590</b>

The confidence grade remains at B2.

### **E6.23 Total capacity of pumping stations**

The total capacity of pumping stations is 2,411,473 m<sup>3</sup>/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 1087 kW to 42,533.4 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 30.98m this year. This reflects an increase of 0.68m 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<sup>4</sup>) 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 28 to 1,376. During the year 15 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 152.3 MI to 3,983.8 MI. This is mainly due to improvement in data quality, particularly values for large capacity tanks.

The confidence grades remain at B2.

### **E6.28-29 Water Towers**

The total number of water towers decreased by 2 to 19

The total capacity of water towers decreased by 2.4 MI to 29.7 MI

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 17,413 to 4,804,725.

The confidence grade remains at B2.

### **E7.2 Annual average non-resident connected population**

The annual average non-resident connected population decreased by 10,718 to 68,969.

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 increased by 101.9 MI/d to 3,095.3 MI/d. This increase was as the result of more 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 18,810 to 2,478,560.

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<sup>2</sup>, 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 has increased slightly by 6 km<sup>2</sup> to 1,898km<sup>2</sup>. This rise 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 2012/13 annual precipitation was 1,229 mm, which is 94 mm higher than in 2011/12. Due to a change in the methodology a direct comparison between the reported rainfall last year should be treated with caution.

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 1km grid spacing.

The confidence grade remains at A2.

#### **E7.8 Total length of sewer**

The total length of sewer decreased by 666km to 49,992. This decrease is comprised of: a decrease of 533km of main sewer; a decrease of 133km of rising main.

The information comprises our GIS inventory (33,176km), an off-inventory addition of missing sewers (296km) and a statistical calculation of lateral sewer length from unit length connections by dwelling (16,520km).

The confidence grade remains at C4.

### **E7.9 Total length of lateral sewer**

The total length of lateral sewer has decreased by 8km to 16,520km. 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 0.77%. New data from our corporate GIS, on properties having sewers within 3 metres, has refined the lateral sewer calculation, increasing the reported inventory.

Unit lengths of lateral sewer are derived from a 2004 survey and checked for validity in 2013 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 decreased by 105km to 17,362Km.

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 decreased by 166km to 7,947km. This decrease is due mainly from watercourse pipes being excluded this year.

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 1000mm diameter decreased by 120km to 745km. Continuing asset recording activity from our capital investment programme is resulting in a consistent rise in this figure. Watercourse pipes being excluded from this year's totals can account for much of this decrease.

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 reported decreased by 593km to 10,889km. This decrease is mainly due to the exclusion of watercourse pipelines and some 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**

Following concerns expressed during last year’s audit on the reporting of collapses using standard job codes in Ellipse the methodology was reviewed and changed for this year’s return. The number reported now looks at incidents in Promise where a Choke Form has been completed with the reason as “collapse” and a work order has been raised in connection with it. This has greatly reduced the number reported to 305 from 2,686 last year.

Of the work orders raised none were against a sewer pumping station so zero has been returned for number of rising main failures.

**E7.15-19 Sewerage Costs**

Sewerage E7.19

	<b>Total</b>
Functional expenditure:	£m
2012/13	42.337
2011/12	<u>38.104</u>
<b>Variance</b>	<b><u>(4.233)</u></b>

Sewerage costs increased by £4.2m (11.1%) from 2011/12. This is analysed as follows:

- £0.2m (1.8%) increase in employment costs due to increased customer focussed costs to improve OPA of £0.3m;
- £0.5m (8.4%) increase in power costs due mainly to increase in consumption and price of £0.4m; additional costs resulting from capital investment of £0.2m; offset by carbon tax decrease of £0.1m;
- £2.4m (54.5%) increase in hired and contracted costs due to a provision for sewer intervention activity as a result of contractual arrangements of £2.1m;
- £0.1m (15.9%) increase in materials and consumables on network maintenance activity;
- £0.5m (33.4%) increase in SEPA charges due mainly to introduction of Sewer Network Licences (SNL) for the sewer network;
- £0.5m (41.5%) increase in other direct costs due to increase in insurance claim costs of £0.3m; and
- £0.1m (0.6%) increase in general and support costs.

Sewerage costs are analysed by region:

	North	East	South	West	Direct	General and Support	Total
Functional expenditure:	£m	£m	£m	£m	£m	£m	£m
2012/13	4.096	8.536	8.181	10.687	<b>31.500</b>	10.837	<b>42.337</b>
2011/12	3.295	7.352	7.572	9.109	<b>27.328</b>	10.776	<b>38.104</b>
<b>Variance</b>	<b>(0.801)</b>	<b>(1.184)</b>	<b>(0.609)</b>	<b>(1.578)</b>	<b>(4.172)</b>	<b>(0.061)</b>	<b>(4.233)</b>

## **E7.20-29 Pumping Stations**

### **E7.20 Total number of pumping stations**

The total number of pumping stations has increased by 60 to 2,112.

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 increased by 440,634 m3/d to 12,503,388 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 increased by 2,399 kW to 76,668 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 30.1m this year representing an increase of 0.4m compared with the previous year. This figure has been calculated by additions, deletions and corrections to the pumping data contained in the historic AR09 spreadsheet.

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 has increased by 33 to 1,334.

The confidence grade remains at B3.

#### **E7.25 Total capacity of combined pumping stations**

The total capacity of combined pumping stations increased by 315,232 m<sup>3</sup>/d to 10,190,293 m<sup>3</sup>/d.

The change recorded this year is mainly attributed to the inclusion of new sites containing large pumps.

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 remains unchanged at 36.

The confidence grade remains at B3.

#### **E7.27 Total capacity of stormwater pumping stations**

The total capacity of stormwater pumping stations decreased by 1,181 m<sup>3</sup>/d to 270,718 m<sup>3</sup>/d.

The change recorded this year is attributed to a net decrease of capacity in one region.

The confidence grade remains at C4.

#### **E7.28 Number of combined sewer overflows**

The number of combined sewer overflows (CSOs) increased by 8 to 3,153.

Work on unsatisfactory intermittent discharge initiatives continued this year, resulting in a net increase in the number of CSOs, due to the discovery of previously unrecorded CSOs discovered during UID studies and drainage area studies. This is partly offset by abandonments and errors in the source data found during the studies. 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 35 to 955. Screened CSOs constitute 30.3% 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 1 to 1,913.

The confidence grade remains at A3.

## **E7.31 Total load**

The total load decreased by 2,674 kg BOD/day to 222,744 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 (72.14% of total load)*

The population load increased by 446 kg BOD/day. The increase in population load is a reflection of the increase in population reported in line E7.1.

### *Tourist (1.18% of total load)*

The tourist load decreased by 571 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 (10.57% of total load)*

The non-domestic load increased by 645 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 (13.31% of total load)*

The trade effluent load decreased by 3,762 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 (0.11% of total load)*

The imported private septic tanks load decreased by 40 kg BOD/day.

### *Imported public septic tanks (0.11% of total load)*

The imported public septic tanks load increased by 151 kg BOD/day.

### *Imported other loads (0.80% of total load)*

The imported other load increased by 1455 kg BOD/day.

### *Imported WWTW sludge (1.19% of total load)*

The imported WWTW sludge load decreased by 440kg BOD/day.

### *Imported WTW sludge (0.44% of total load)*

The imported WTW sludge load decreased by 594 kg BOD/day.

### *Sludge return liquors (0.15% of total load)*

The sludge return liquor load increased by 36 kg BOD/day.

The confidence grade remains at B3.

## E7.32-36 Sewage Treatment Costs

### Sewage Treatment E7.36

	<b>Total</b>
Functional expenditure:	£m
2012/13	43.730
2011/12	42.771
<b>Variance</b>	<b><u>(0.959)</u></b>

Sewage treatment costs increased by £1.0m (2.2%) from 2011/12. This is analysed as follows:

- £1.4m (11.7%) decrease in employment costs due to efficiencies generated by PACE project of £0.5m; and reduction in STW operating costs of £0.9m;
- £0.9m (7.3%) increase in power costs due to increase in consumption and price of £0.8m; and additional costs resulting from capital investment of £0.2m; partly offset by carbon tax decrease of £0.1m;
- £0.6m (43.2%) increase in hired and contracted costs due to additional operating costs as a result of capital investment of £0.2m; and as a result of increased maintenance caused by the much higher than average rainfall;
- £0.4m (38.0%) increase in materials and consumables mainly due to increased STW operating costs caused by much higher than average rainfall;
- £0.2m (2.8%) increase in SEPA costs;
- £0.1m (13.4%) decrease in other direct costs; and
- £0.4m (5.1%) increase in general and support costs.

Sewage treatment costs are analysed by region:

	North	East	South	West	Direct	General and Support	Total
Functional expenditure:	£m	£m	£m	£m	£m	£m	£m
2012/13	5.723	8.371	10.811	9.585	<b>34.490</b>	9.240	<b>43.730</b>
2011/12	5.342	7.974	10.888	9.775	<b>33.979</b>	8.792	<b>42.771</b>
<b>Variance</b>	<b><u>(0.381)</u></b>	<b><u>(0.397)</u></b>	<b><u>+0.077</u></b>	<b><u>+0.190</u></b>	<b><u>(0.511)</u></b>	<b><u>(0.448)</u></b>	<b><u>(0.959)</u></b>

**Confidence Grades** – Confidence grades on Table E7 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 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 1 to 1,913. Changes to the number of WWTW this year are broken down by size band and treatment category in the tables below:

Size Band	2011/12	2012/13	Net Change
0	1,164	1,184	+20
1	226	226	No change
2	156	139	-17
3	181	181	No change
4	126	123	-3
5	36	38	+2
6	23	22	-1
Total	1,912	1,913	+1

Treatment Category	2011/12	2012/13	Net Change
Septic Tanks	1,190	1,206	+16
Primary	54	44	-10
Sec Activated Sludge	181	180	-1
Sec Biological	293	292	-1
Tertiary A1	31	33	+2
Tertiary A2	18	19	+1
Tertiary B1	60	62	+2
Tertiary B2	17	15	-2
Sea Preliminary	15	10	-5
Sea Screened	2	4	+2
Sea Unscreened	51	48	-3
Total	1,912	1,913	+1

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 3 to 50. 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 55. The confidence grade remains at A1.

**E8.11-18 Average Daily Loads**

The total average daily load, excluding septic tanks, decreased by 3,447 kg BOD/day to 216,286 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	2011/12	2012/13	Net Change
	<i>Excluding septic tanks</i>		
0	473	396	-77
1	1,168	1,085	-83
2	2,258	1,884	-375
3	10,681	10,219	-462
4	36,570	36,055	-516
5	31,187	33,533	2,346
6	137,395	133,115	-4,280
<b>Total</b>	<b>219,733</b>	<b>216,286</b>	<b>-3,447</b>

Treatment Category	2011/12	2012/13	Net Change
Septic Tanks	5,686	6,458	772
Primary	4,048	4,165	117
Sec Activated Sludge	147,393	145,466	-1,926
Sec Biological	22,163	22,172	9
Tertiary A1	23,601	23,817	216
Tertiary A2	5,267	4,433	-834
Tertiary B1	8,432	8,134	-298
Tertiary B2	1,574	1,528	-46
Sea Preliminary	2,123	1,882	-241
Sea Screened	473	515	43
Sea Unscreened	4,659	4,173	-486
<b>Total</b>	<b>225,418</b>	<b>222,744</b>	<b>-2,674</b>

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 203 kg BOD/day to 7,465 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 181 kg BOD/day to 12,383 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 2012/13.

The number of failing wastewater treatment works is being reported as 2 for 2012/13. We have one outstanding appeal with SEPA for Caldercruix WWTW and are awaiting their response. If successful this will reduce our March 2013 position to 1 failing WWTW (Cartland WWTW).

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 Secondary Biological.

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

### **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.

### **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 2012/13. Re-stating 2011/12 figures on like-for-like basis shows the following variations:

	<b>Septic tanks</b>	<b>Primary</b>	<b>Secondary</b>	<b>Tertiary</b>	<b>Sea Outfalls</b>	<b>Direct</b>	<b>General and Support</b>	<b>Total</b>
	£m	£m	£m	£m	£m	£m	£m	£m
Total treatment works 2012/13	2.897	1.060	23.553	6.633	0.347	<b>34.490</b>	9.240	<b>43.730</b>
2011/12	2.625	1.000	23.387	6.635	0.332	<b>33.979</b>	8.792	<b>42.771</b>
<b>Variance</b>	<b>(0.272)</b>	<b>(0.060)</b>	<b>(0.166)</b>	<b>+0.002</b>	<b>(0.015)</b>	<b>(0.511)</b>	<b>(0.448)</b>	<b>(0.959)</b>

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:

- Dunoon WTW [West, Secondary Activated Sludge, Band 5] was only commissioned at the end of the prior year and increased £0.1m;
- Montrose STW [East, Tertiary A1, Band 5] decreased by £0.1m due to resolution of odour issues, reducing chemical spend and pump hire during capital refurbishment in prior year;

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 £34.5m (E2.7) total direct wastewater treatment costs, £34.3m of costs or 99.6% (£42.3m less £7.2m sludge costs plus £1.5m 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 reduced by 1 to 21, this is because:

- an increase in both household and non-domestic received has led to Ironmill Bay and Bathgate being classified as a large works; and
- a decrease in Trade effluent means Girvan, Galasheils and Dunbar are 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 decreased by 65,635 to 2,158,387.

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	2011/12	2012/13	Net Change	% Change	Classification change 2012/13
Allers	44,740	41,378	-3,362	-7.51%	
Alloa	45,057	45,597	540	1.20%	
Ardoch	57,753	60,802	3,048	5.28%	
Bathgate	23,258	25,869	2,610	11.22%	New in 2012/13
Carbarns	46,321	47,786	1,465	3.16%	
Dalderse	92,463	89,034	-3,430	-3.71%	
Daldowie	269,697	270,337	640	0.24%	
Dalmarnock	239,124	262,696	23,572	9.86%	
Dunbar	33,973	23,571	-10,402	-30.62%	Not a large works
Dunfermline	78,186	33,598	-44,588	-57.03%	
Dunnswood	30,753	31,253	500	1.62%	
Erskine	82,069	77,017	-5,052	-6.16%	
Galasheils	25,153	22,937	-2,216	-8.81%	Not a large works
Girvan	50,573	19,390	-31,183	-61.66%	Not a large works
Hamilton	63,586	57,114	-6,471	-10.18%	
Iron Mill Bay	14,054	60,685	46,631	331.79%	New in 2012/13
Kinneil Kerse	48,626	50,136	1,511	3.11%	
Kirkcaldy	62,370	64,132	1,762	2.83%	
Laighpark (Paisley)	132,350	144,289	11,938	9.02%	
Perth	112,657	97,342	-15,315	-13.59%	
Philipshell	77,510	57,822	-19,688	-25.40%	
Shieldhall	519,078	536,798	17,721	3.41%	
Stirling	75,770	72,824	-2,946	-3.89%	
Troqueer	36,213	31,879	-4,334	-11.97%	
	2,261,335	2,224,285	37,050 <sup>1</sup>		

The proportionally large changes seen at Dunbar, Girvan and Philipshell are due to changes in the trade effluent received at these works. The proportional changes seen at Dunfermline and Iron Mill Bay are due to the boundaries held in our existing GIS system which are at odds with those previously reported. This anomaly has been flagged with our GIS team for further investigation.

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.

<sup>1</sup> Includes movement in Bathgate, Dunbar, Galasheils, Girvan and Iron Mill Bay.

### **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 2012 to February 2013 for this line. For WWTW with a two tier consent we have taken exceeding the lower tier as being a non-compliant sample.

Allers, Alloa, Carbars, Daldowie, Dalmarnock, Dunnswood, Hamilton, Philipshill, Shieldhall and Stirling WWTWs marginally increased their compliance.

Compliance at Ardoch, Dunfermline, Erskine and Lighthpark (Paisley) WWTWs show a marginal decrease.

### **E9.8-14 Treatment Works Category**

This information is held in the corporate asset inventory. We are reporting 21 large WWTWs in Table E9, though 22 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.

### **E9.15-21 Works cost**

Analysis of functional costs for large sewage treatment works:

	2012/13	2011/12	Variance
	£m	£m	£m
Bathgate	0.160	n/a	(0.160)
Daldowie	0.832	0.713	(0.119)
Dunbar	n/a	0.301	+0.301
Galashiels	n/a	0.056	+0.056
<b>Tertiary treatment</b>	<b>0.992</b>	<b>1.070</b>	<b>+0.078</b>
Allers	0.205	0.268	+0.063
Alloa	0.307	0.289	(0.018)
Ardoch	0.349	0.318	(0.031)
Carbarns	0.219	0.257	+0.038
Dalderse	0.314	0.298	(0.016)
Dalmarnock	0.941	0.939	(0.002)
Dunfermline	0.139	0.120	(0.019)
Dunnswood	0.245	0.243	(0.002)
Erskine	0.372	0.357	(0.015)
Girvan	n/a	0.189	+0.189
Hamilton	0.386	0.368	(0.018)
Iron Mill Bay	0.165	n/a	(0.165)
Kinneil Kerse	0.360	0.369	+0.009
Kirkcaldy	0.485	0.419	(0.066)
Lairdpark (Paisley)	0.891	0.944	+0.053
Perth	0.284	0.216	(0.068)
Philipshall	0.533	0.557	+0.024
Shieldhall	1.977	1.928	(0.049)
Stirling	0.232	0.233	+0.001
Troqueer	0.165	0.149	(0.016)
<b>Secondary treatment</b>	<b>8.569</b>	<b>8.461</b>	<b>(0.108)</b>
<b>Direct large treatment works</b>	<b>9.561</b>	<b>9.531</b>	<b>(0.030)</b>
General and Support	1.384	1.361	(0.023)
<b>Total large treatment works</b>	<b>10.945</b>	<b>10.892</b>	<b>(0.053)</b>

The number of treatment plants classified as large works has decreased by 1 from 2011/12, with Bathgate and Iron Mill Bay being classified from small to large and Dunbar, Galashiels and Girvan from large back to small.

- Bathgate STW [South, Tertiary B1, Band 6] has moved from small tertiary to large tertiary £0.2m;
- Daldowie STW [South, Tertiary A1, band 6] has increased by £0.1m due to aerators being out of service in prior year;
- Dunbar STW [South, Tertiary A2, Band 5] has moved from large tertiary to small tertiary £0.3m;
- Galashiels STW [South, Tertiary B1, Band 5] has moved from large tertiary to small tertiary £0.1m;
- Girvan STW [West, Secondary Activated Sludge, Band 5] has moved from large secondary to small secondary £0.2m;
- Iron Mill Bay [East, Secondary Activated Sludge, Band 6] has moved from small secondary to large secondary £0.2m;

**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 22,053 to 2,648,637. 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 reported 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 decreased slightly to 19.2 ttds. As with AR12 all the SW figures reported were taken direct from the Gemini system.

An overall increase in the volume of enhanced treated sludge was noted 1.198ttds. This was largely due to Galashiels and Troqueer where the majority of cake produced went from conventional to enhanced treatment. Galashiels increase of 0.981 ttds was due to Capital Investment of the site and Troqueer (1.429 ttds) was all enhanced treated. Perth and Kinneil Kerse conversely showing decreased quantities.

Conventional sludge production showed a small decrease by 2.708 ttds from the previous year. This is again due to Capital Investment project at Galashiels and the introduction of enhanced treatment at Troqueer giving a product suitable for agricultural use and subsequent removal of composting and digested sludge from this site.

Cumnock had issues with out of spec cake whereby 2.468 ttds was recycled to land restoration over the reporting period, unlike the year before.

A decrease of 0.160 ttds was recorded in sludge taken to landfill in 2012/13.

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



## E10.3-11 Sludge Treatment and Disposal Costs

### Sludge Treatment E10.11

	<b>Total</b>
Functional expenditure:	£m
2012/13	12.281
2011/12	12.849
<b>Variance</b>	<b>+0.568</b>

Sludge treatment costs have decreased by £0.6m (4.4%) from 2011/12. This is analysed as follows:

- £0.1m (3.7%) decrease in employment costs;
- £0.1m (7.4%) increase in power costs due to additional costs resulting from capital investment of £0.1m;
- £0.3m (6.6%) decrease in hired and contracted costs due to reduction in sludge disposal costs due to reduced volumes;
- £0.2m (18.5%) decrease in materials and consumables due to reduction in sludge treatment chemical costs due to reduced volumes; and
- £0.1m (2.4%) decrease in general and support costs.

Scottish Water incurs costs associated with the transportation of sludge from its own sewage treatment works to PPP sludge treatment centres (£2.5m). 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:

	<b>2012/13</b>	<b>2011/12</b>	<b>Variance</b>
	£m	£m	£m
Farmland:			
Untreated	0.000	0.000	+0.000
Conventional	2.280	4.157	+1.877
Advanced	8.257	7.178	(1.079)
Incineration	0.000	0.000	+0.000
Landfill	0.714	1.269	+0.555
Composted	0.000	0.204	+0.204
Land reclamation	1.030	0.041	(0.989)
Other	0.000	0.000	+0.000
<b>Total</b>	<b>12.281</b>	<b>12.849</b>	<b>+0.568</b>

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 (£0.2m) and Farmland Conventional (0.7m) to Farmland Advanced £0.8m;
- Changed process at Galashiels (temporary use of lime while digester is refurbished) changing disposal route from Farmland Conventional (£0.4m) to Farmland Advanced (£0.2m) and Land Reclamation;
- Landfill no longer used at Kilmory (0.2m) - now Farmland Advanced and Oban (0.3m) – now Farmland Advanced;
- Land Reclamation was available in 2012/13 at a number of sites, mainly Dunfermline (£0.2m) - was Farmland Advanced, Galashiels (£0.1m) - was Farmland Conventional and Cumnock (£0.5m) - was Farmland Conventional.

**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.

## Table E11 Management & General

### E11.1-4 Employee Numbers

Employee numbers exclude FTE's associated with capital work, third party services and PFI. This ensures consistency with the costs reported in tables E4 to E10.

The following staff numbers reconcile to the annual accounts for 2011/12 and 2012/13 as follows:

	2012/13 FTE's	2011/12 FTE's	Variance (inc)/dec
Direct operations	804	841	37
Indirect operations (General and support)	672	684	12
Other (incl hired and contracted)	522	517	(5)
<b>Total employee numbers per E11</b>	<b>1,998</b>	<b>2,042</b>	<b>44</b>
Staff involved in capital & transformation projects	1,055	986	(69)
Staff associated with PFI	8	9	1
<b>Statutory waste and wastewater services</b>	<b>3,061</b>	<b>3,037</b>	<b>(24)</b>
Staff associated with third party activities	195	168	(27)
Staff seconded to Scottish Water Solutions	17	20	3
<b>Total FTE's per Statutory Accounts ex SWBS</b>	<b>3,272</b>	<b>3,224</b>	<b>(48)</b>

The average total number of employees during the year increased by 48 from 3,224 to 3,272. The number of employees in total at March 2013 (3,277), increased by 47 from the March 2012 figure (3,230). The increase reflects employees working on capital projects displacing contractors and the expansion of the number of apprentices and management trainees.

## **E11.5-20 Management & General**

Our methodology for categorising assets into water and wastewater is the same as last year.

## **E11.5-14 Non-operational Buildings**

There are 4 fewer depots and 1 less Laboratory in 2012/13 due to closures. The number of Offices and Control Centres remain unchanged.

<b>Building Type</b>	<b>Line</b>	<b>AR12</b>	<b>AR13</b>
Offices	E11.5	8	8
Laboratory	E11.7	3	2
Depot	E11.9	44	40
Control Centre	E11.11	1	1

There has been no change to the floor area of any of the remaining buildings from last year.

## **E11.15 Vehicles & plant**

The total number of vehicles in this reporting year is 1,470, a drop of 66 from the 1,536 reported in AR12. The split between vehicles and plant is different with the valuation decreasing from £30.64 million to £30.61 million.

## **E11.16-17 Telemetry systems**

The 5,247 telemetry sites reported show an increase from 4,309 as reported in 2011/12. This now equates to having 47.3% coverage of Scottish Water's operational sites.

The asset valuation for the report year has increased from £19.1 million to £23.4 million, based on the same standard unit valuation as used in 2011/12.

## **E11.18-20 Information systems**

There is a reported net increase of 10 laptops and a reduction of 410 workstations and 68 servers from the 2011/12 values. The gross asset valuation for the report year has decreased from £16.4 million to £16.1 million. The total Net MEAV has decreased by £0.1 million.

## **Additional E Table Commentary**

### Pension Contributions

Scottish Water is a participating employer in three Local Government Pension Schemes (LGPS) - Strathclyde Pension Fund, the North East Scotland Pension Fund (previously called the Aberdeen Pension Fund) and the Lothian Pension Fund. These funds are administered by Glasgow City Council, Aberdeen City Council and Edinburgh City Council respectively.

The administering authority for each scheme is required to conduct a triennial valuation of the assets and liabilities of each scheme in line with LGPS regulations. The purpose of the valuation is to review the financial position of the fund and specify the employer contribution rates for the next 3 years. A valuation was carried out as at 31 March 2008 and Scottish Water has been advised of the contribution rate for the three years from financial year 2009/10.

The contribution rate for each fund is based on the current service cost and the funding position of each fund at the valuation date. The average funding level of the 3 schemes at 31/3/08 was 92%. Therefore, the Employer contribution rates shown below include an element to reduce the deficit on each fund.

	<b>2010/11</b>	<b>2011/12</b>	<b>2012/13</b>
<b>Contribution %</b>			
North East Scotland	19.20	19.30	19.30
Edinburgh	23.20	24.00	24.00
Glasgow	18.50	19.30	19.30
<b>Average Number of Members</b>			
North East Scotland	865	837	838
Edinburgh	1,021	1,018	1,025
Glasgow	1,216	1,189	1,235

The average contribution rate has remained unchanged with 20.87% in 2011/12 and 20.86% in 2012/13.

## 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 in the Q4 2012/13 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. Scottish Water successfully delivered £487.4million of investment in 2012/13. This comprised £26.4m of investment in the completion programme, and £461.0m in the Q&SIIIb programme. Table G1 reports the total investment in the year.

Total forecast investment to March 2015 is £2,431.6m comprising £196.5m for completion programme (Q&SII & Q&SIIIa), £2,196.1m for Q&SIIIb and £39.0m for Q&SIV early start. Net capital investment to March 2015, excluding grants and contributions, is £2,406.6m. Unpromoted capital maintenance has been proportioned across lines G1.1 to G1.5. Programme risk, rebates, contingencies and SWS1/SWS2 contractual payments/recoveries have been allocated to line G1.16. The £70m 3b plus programme has also been allocated to G1.16.

Over the year, we have progressed 5 Q&SII projects to signoff, representing 83% of the total outstanding, and 15 Q&SIIIa projects to regulatory signoff representing 65% of the total outstanding at the start of the year.

Capital maintenance investment accounts for 56% of the investment in 2012/13.

The table below reflects the inflation assumptions used within the CIR. Inflation assumptions have been updated to reflect the 2013-14 Delivery Plan.

### Inflation Assumptions

	<b>2007 /08</b>	<b>2008 /09</b>	<b>2009 /10</b>	<b>2010 /11</b>	<b>2011 /12</b>	<b>2012 /13</b>	<b>2013 /14</b>	<b>2014 /15</b>
Overall COPI Assumption	0.0%	2.4%	-3.1%	-2.8%	2.5%	3.0%	3.0%	3.0%
COPI Deflation Risk Assumption	0.0%	2.4%	-3.1%	-2.8%	2.5%	2.3%	2.0%	1.9%

## **Table G1 Summary - Investment**

### **G1.1-1.6 Q&SIIIb Capital Maintenance**

Projects containing Capital Maintenance drivers are captured in these lines. In 2012/13 expenditure of £273.3m was made against Q&SIIIb Capital Maintenance; the total forecast to complete the programme is currently predicted to be £1,231.2m. The £40.6m forecast post March 2015 will be funded from Q&SIV Capital Maintenance.

### **G1.7–1.11 Q&SIIIb Growth Investment**

Projects containing Growth drivers are captured in these lines. In 2012/13 expenditure of £25.3m was made against Q&SIIIb Growth; the total forecast to complete the growth element of the programme is currently predicted to be £175.3m. £32.2m is forecast in the tables post March 2015 with £30.0m as a forecast saving and £2.2m expected to be funded from Q&SIV Growth.

### **G1.12-1.17 Q&SIIIb Enhancement Expenditure**

Projects containing Enhancement drivers are captured in these lines. In 2012/13 expenditure of £160.5m was made against Q&SIIIb Enhancements; the total forecast to complete the enhancements is currently predicted to be £994.8m including post March 2015 investment and risks.

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

The OMG180 funding provision has now been completely allocated to projects.

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

Projects from the completion programme are captured in these lines. In 2012/13 a total expenditure of £26.4m was made against this programme with £0.2 being spent on the Q&SII programme and £26.2m on Q&SIIIa. The Completion programme is predicted to outturn at £196.5m with a forecast of £47.3m on Q&SII and £149.2m on Q&SIIIa.

### **G1.22: Q&SIV Early Start.**

Projects containing Q&SIV Early start drivers are captured in these lines. In 2012/13 expenditure of £2.0m was made against Q&SIV early start, with a total forecast spend of £39.0m being predicted during completion of the Programme. Projects currently promoted in this programme have a post March 2015 cost of £82.8m. The future costs are assumed to be funded from the Q&SIV 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 for future years. The value in the report year is based on the actual opex released as a consequence of the capital programme.

## **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 2013 or if a programme is behind Delivery Plan.

### **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 30,333pe to March 2013; 202pe being delivered in this report year.

### **G2.2 Strategic Capacity – Wastewater Treatment**

We have delivered a total of 23,922pe to March 2013; 897pe being delivered in this report year.

### **G2.3 Strategic Water Network Capacity**

We have delivered a total of 22,046pe to March 2013; 5,315pe 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 49 outputs to March 2013; 21 being delivered in this report year, outperforming the Delivery Plan cumulative total of 41.

#### **G2.6 Number of treatment works improved to meet drinking water quality standards**

We have delivered 2 outputs to March 2013; 2 being delivered in this report year meeting the Delivery Plan cumulative total of 2.

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

We have delivered 1,938km to March 2013; 1,838km being delivered in this report year, outperforming the Delivery Plan cumulative total of 1,320km.

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

We have delivered 143 outputs to March 2013; 17 being delivered in this report year. This programme is now complete.

## **G2.10 Number of sites with increased physical security**

We have delivered 375 outputs to March 2013; all 256 have been delivered in this report year, outperforming the Delivery Plan cumulative total of 346.

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

We have delivered 249 outputs to March 2013; 72 being delivered in this report year, outperforming the Delivery Plan cumulative total of 126.

## **G2.13 Number of WTW receiving improved disinfection control**

We have delivered 20 outputs to March 2013; 8 have been delivered in this report year, outperforming the Delivery Plan cumulative total of 12.

## **G2.15 Number of WTW with reduced cryptosporidium risk**

We have delivered 12 outputs to March 2013; all 12 have been delivered in this report year, outperforming the Delivery Plan cumulative total of 7.

## **G2.16 Number of raw water sampling points to comply with WFD**

We have delivered 86 outputs to March 2013; all 86 have been delivered in this report year, outperforming the Delivery Plan cumulative total of 0.

## **G2.17 Lead communication pipes survey completed**

We have delivered 1 output to March 2013; 1 has been delivered in this report year.

## **G2.18 Number of water resource zones with company level of service restored (excluding 7 stage)**

We have delivered 1 output to March 2013; 1 has been delivered in this report year, meeting the Delivery Plan cumulative total of 1. This programme is now complete.

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

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

We have delivered 13 outputs to March 2013; 8 being delivered in this report year, ahead of the Delivery Plan cumulative total of 8.

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

We have delivered 46 outputs to March 2013; 13 have been delivered in this report year, outperforming the Delivery Plan cumulative total of 27.

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

We have delivered 36 outputs to March 2013; 9 being delivered in this report year. This is behind the Delivery Plan cumulative total of 54. Programme is 18 outputs behind due to commissioning and 3<sup>rd</sup> party issues. 4 of these outputs are associated with on going issues at Loch Ryan.



### **G2.25 Improvements to the wastewater network (properties)**

We have delivered 15 outputs to March 2013; all 15 being delivered in this report year. This programme is now complete.

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

We have delivered 19 outputs to March 2013; 9 have been delivered in this report year, meeting the Delivery Plan cumulative total of 19.

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

We have delivered 16 outputs to March 2013; 11 have been delivered in this report year, meeting the Delivery Plan cumulative total of 16.

### **G2.29 Number of dual manhole systems improved**

We have delivered 2 outputs to March 2013; 0 have been delivered in this report year. We are now behind the Delivery Plan cumulative total of 3. Discussions with SEPA regarding East Kilbride are ongoing.

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

We have delivered 24 outputs to March 2013; 17 have been delivered in this report year, outperforming the Delivery Plan cumulative total of 20.

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

We have delivered 78 outputs to March 2013; 63 have been delivered in this report year, meeting the Delivery Plan cumulative total of 78.

### **G2.33 Number of environmental studies undertaken**

We have delivered 92 outputs to March 2013; 47 being delivered in this report year. We are now behind the cumulative Delivery Plan total of 112. This is mainly due to delays on Bathing Water Studies. Discussions are on going with SEPA regarding the sign-off process on 9 of the submitted studies. The other sites missed include strategic studies at Almond Valley and Water of Leith, Priority Substances Directive and Fife WFD.

### **G2.34 Number of assets covered by flooding risk assessments**

We have delivered 294 outputs to March 2013; 78 have been delivered in this report year. This programme is now complete.

### **G2.35 Number of water resource zones with company level of service restored (7 stage)**

We have delivered 4 outputs to March 2013; all 4 have been delivered in this report year outperforming the Delivery Plan cumulative total of 0.

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

### **G2.38 Number of properties removed from low pressure register**

We have removed 2,343 properties from the low pressure register to March 2013; 852 being removed in this report year, outperforming the Delivery Plan cumulative total of 1,704 properties. The programme has now delivered the planned target however it is still on going to achieve additional customer benefits.

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

We have removed 515 properties from the low pressure register to March 2013; 377 being removed in this report year, outperforming the Delivery Plan cumulative total of 108. The programme has now delivered the planned target however it is still on going to achieve additional customer benefits.

### **G2.40 Works associated with the Commonwealth Games**

We have delivered 32 outputs to March 2013; 1 of these being delivered in the current report year, outperforming the Delivery Plan cumulative total of 0.

### **G2.41 Number of assets protected from flood risk**

We have delivered 17 outputs to March 2013; 10 have been delivered in this report year, outperforming the Delivery Plan cumulative total of 16.

### **G2.44 Number of climate change studies**

We have delivered 10 outputs to March 2013; 5 have been delivered in this report year, meeting the Delivery Plan cumulative total of 10.

### **G2.45 Renewable Power Generation Capacity Provided.**

We have delivered 2 GWh to March 2013. All 2 GWh have been delivered in this report year, outperforming the Delivery Plan cumulative total of 0.

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

Over the year, we have progressed 5 Q&SII projects to signoff, representing 83% of the total outstanding, and 15 Q&SIIIa projects to regulatory signoff representing 65% of the total outstanding at the start of the year.

### **G2.54 Q&SII projects remaining**

We have 1 project, Fortrose Harbour ST, remaining. This is due to be delivered in 2013-14.

### **G2.55 Q&SIIIa projects remaining**

We have 8 projects remaining: Corsehouse WTW, Killylour WTW, UID – Selkirk Avenue, UID – Cowdenbeath WWPS and Storm Tank, UID – Kilmarnock Gravity Transfer Scheme, UID – Howard Park Kilmarnock, UID – Holmes Road Western Intercepting Sewer and UID Gatehead Storm Tank. These are due to be delivered in 2013-14.

## **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 increased by 0.84% from 90.48% in 2012 to 91.32% compliance of water supply zones in this reporting year.

The exclusion of manganese from drinking water has reduced by 1.67% from 94.92% in 2012 to 93.25% compliance of water supply zones in 2012.

#### **G3.3              Number of microbiological failures at water treatment works**

The number of microbiological failures at water treatment works has reduced by 16 from 49 to 33.

#### **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 being reported as 2 for 2012/13. We have one outstanding appeal with SEPA for Caldercruix WWTW and are awaiting their response. If successful this will reduce our March 2013 position to 1 failing WWTW (Cartland WWTW).

#### **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.

This indicator is dependent on the outcome of the seven-stage process and studies which may reduce or increase the number of outputs to be delivered and the number of known unsatisfactory discharges.

At March 2013 there were 823 UIDs. Studies continue to be undertaken during the 2013/14 period.

#### **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 331 incidents in 2012/13. There was no water pollution category 1 incidents, 9 wastewater pollution category 1 & 2 incidents and 322 wastewater pollution category 3 incidents.

### **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.

The water efficiency steering group continues to meet on a monthly basis to maintain a focus on water efficiency and ensure a joined up approach. Within the WEP Scottish Water has laid out a number of key activities and expected outcomes, the steering group use these as the focus of its activity.

### **G3.10 – 21 Customer Service Serviceability Indicators**

#### **G3.10 Properties on the Low Pressure Register**

The number of properties on the Low Pressure Register is reported as 198 excluding any valid exclusions. This is reported against a required serviceability Standard of 1,000.

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

The overall figure for 2012/13 for properties affected for more than 12 hours was 1513 properties, a decrease of 2,159 properties from 2011/2012. In this reporting year there were four incidents affecting more than 100 properties. The combined impact of these events affected 484 properties for greater than twelve hours.

In April 2012, 105 properties were affected by incident in Campbeltown with supply restored in 14½ hours.

In May 2012, 168 properties were affected by a burst in Southend DMA near Campbeltown with supply being restored over the 12 hour banding.

In June 2012, 104 properties were affected by an overrun on a planned event in Irvine with supply restored in just over 15 hours.

In December 2012, 107 properties were affected by a burst in Tain, north of Inverness with supply restored in 14 hours.

In March 2013 we had 4 events which affected a total of 217 properties; 3 on the island of Arran and 1 in Tarbert. These events were a direct result of severe snowfall which led to a prolonged power interruption on the Kintyre peninsula. All of these properties were on pumped supplies and roads were blocked by up to 15 foot snow drifts preventing SW from restoring the supply in less than 12 hours. All power and communications (mobile and land) lines were down in these areas for 48 hours.

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

There were 171 mains bursts per 1,000km during 2012/13. This was a decrease of 12 from 2011/12.

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

### **G3.13 Properties at Risk of Internal Flooding**

The number of properties at risk of internal flooding at March 2013 was 395. This was an increase of 58 properties compared to 2011/12 outturn of 337. This was due to a combination of planning restrictions due to funding limits, inaccurate assumptions regarding emerging properties at risk and weather conditions in 2012.

### **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 2012/13 was 645, a decrease of 48 on the previous year.

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

The overall Satisfaction Level at March 2012 was 88% and is an increase of 5% 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 the Scottish Public Services Ombudsman (SPSO) in 2012/13 was 25 which is a reduction of 19 on the previous year. The SPSO came into being on the 15<sup>th</sup> 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 2012 was 18,179, a reduction of 7,718 from 2012.

### **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. The Water Efficiency Trial aims to understand how customer consumption behaviour in Scotland responds to a range of water efficiency measures and to assesses the relative cost/benefit of each of these measures and gather robust evidence which may be used to inform future direction and policy appropriate to Scotland.

We have appointed an internal project manager and are in the process of procuring the services of Home Log Book Solutions Ltd (HLBSL) as project delivery partner. One of the challenges we have faced in creating this trial has been securing developer buy in. By working with HLBSL we now have over 1250 properties provisionally signed up to the trial (this will be dependant on householder participation and not all of the properties may be suitable). This part of the trial will focus on new build development and is made up from a mix of private and social housing. Through our Incentivising Developers Project we are also undertaking two other trials which will support this trial one will look at retrofitting water efficiency in social housing and the other will allow us to work with West Lothian Council and will include some rainwater harvesting.

**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. The design and build of a register to include properties at risk of external flooding will commence in 2013/14.

**G3.20            The Overall Performance Assessment (OPA) Score**

The 2012/13 OPA score was 368. This is the third year that 17 indicators have been incorporated and we have increased our score by 13 points on 2011/12.

**G3.21            The average annual level of leakage**

The 2012/13 Maximum Likelihood Estimation (MLE) leakage is 575.152 MI/d. This is a reduction of 54.088 MI/d from the 2011/12 MLE leakage figure of 629.240 MI/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 2012/13 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&SIIIa 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**

#### **G4.3 Km of mains rehabilitated**

Our forecast of 4,162km 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. There is a greater number of km being forecast through MS4 than the other milestones. This is due to revisions made to claimable km during the commissioning period.

#### **G4.3 Number of backflow prevention devices installed**

We are showing a reduced number of outputs forecasting to achieve MS4. This total number of outputs on this programme is currently being reviewed with an expected outturn of 272 devices.

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

#### **G4.15 Number of WWTW discharges improved to meet new licence requirements.**

We are forecasting to deliver 74 against a Delivery Plan target of 75. Leadhills STW will be removed from the delivery plan target for 2013-14.

#### **G4.18 Number of WWPS upgraded to comply with existing licence requirement**

We are forecasting to deliver 22 outputs against a Delivery Plan target of 23. Discussions with SEPA are ongoing with a view to removing Gregory Place.